Cepheid SmartCycler

MJ Research PTC-220

BioRad Model PTC-1148

MJ Research Model PTC-150

Logon: Cepheid/cphd
(delete this before publishing)

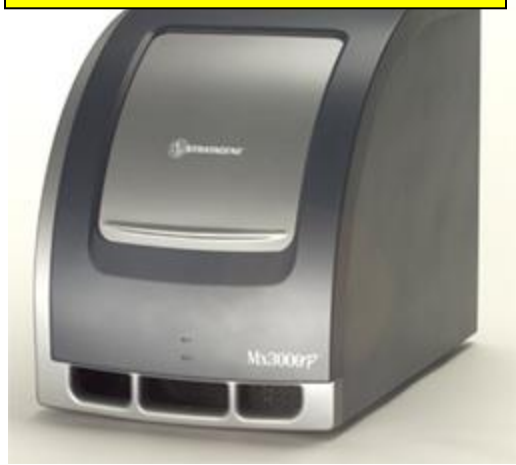
Thermal Cyclers
PCR, qPCR

BioRad T100

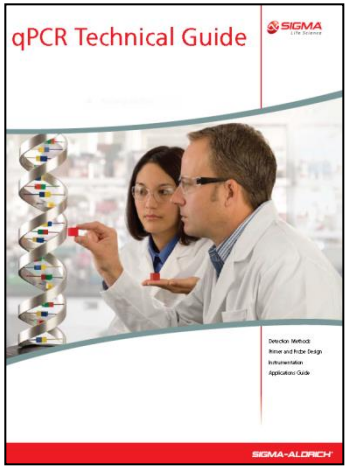
BioRad MyCycler

HYBAID-PCR, Omn-E

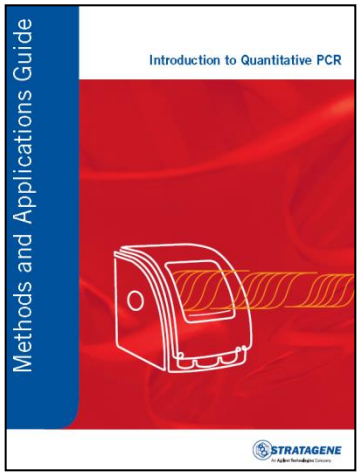
Logon: Admin/3000hanover
(delete this before publishing)



Stratagene qPCR Mx3005P



Hotlink to Manual qPCRTechnical (Sigma)



Hotlink to Manual Intro to Quantitative PCR (Stratagene)

Hot link to ABI Introduction to Gene Expression …pdf

Prepared by: Bob Morrison
STLCC-CPLS Instrumentation Specialist
June 2008, Latest Revision Feb 2013

Thermal Cycler: Mycycler, Bio-Rad, w Gradient

- A 96-well reaction module designed for use with 0.2 ml tubes or plates
- Intuitive programming of temperatures, times, and protocol options
- A user-programmable sleep mode that saves power when the instrument is not in use
- Status and history of each run recorded in run and validation reports
- A self-adjusting heated lid that accommodates standard 0.2 ml thin-wall PCR tubes, strips, and plates
- Optional thermal gradient feature

Sample capacity 96 x 0.2 ml tubes or 96-well PCR plate
Speed of ramping Up to 2.5°C/sec
Temperature range 4–100°C
Temperature accuracy ±0.5°C of programmed target at 90°C, NIST-traceable
Temperature uniformity ±0.5°C well-to-well within 30 sec of arrival at 90°C
Input power 100–150 VAC, 50–60 Hz; 220–240 VAC, 50–60 Hz; 670 W
Maximum Display 12 cm (4.7") high-resolution 1/4
VGA Ports 1
USB Memory 99 typical programs
Dimensions (W x D x H) 24 x 44 x 21 (9 x 17.5 x 8") Weight 10 kg (22 lb)
Gradient Gradient accuracy ±0.5°C of programmed target at end rows, NIST-traceable Row uniformity ±0.5°C well-to-well (within row) within 30 sec of reaching target temperature Gradient range 30–99°C Temperature differential range 1–25°C

Thermal Cycler: MyCycler, HotLink to User Manual

1. **Plug in the unit to provide power, <u>there is no toggle on/off switch.</u>**
2. **Turn on by pressing the Stand-by key once**
3. **To put into Stand-by mode conserving power, hold down for > 3 sec**
4. **Turn off completely by unplugging the unit, there is no on/off switch.**

STOP key will pause a protocol when running.

Pressing STOP again will terminate the protocol

HELP menus are available

From the HOME/startup screen, select F5-Help to review topics and display an index of features.

Hot link to Bio-Rad MyCycler User Manual … 45 pgs pdf

Thermal Cycler: Mycycler, BioRad, Quick Guide Page 1/2

1. Power up the MyCycler by either plugging in the instrument or, pressing the **Standby** key on the front panel of the instrument, if in Standby mode. After a quick diagnostic routine, the **Home** screen will be displayed.
2. Press **F2-Create** from the Home Screen. A selection menu will appear.
3. Select the "Custom" option from the selection menu (it should be selected by default) and press **Enter**. You may also choose to edit a Bio-Rad template protocol listed in this menu if the template protocol is similar to your desired protocol.
4. Edit the fields of the protocol.
    - The default, custom protocol is a simple three-step amplification protocol; 30 seconds at 95°C, 30 seconds at 55°C, followed by 0 seconds at 72°C.
    - To add or delete a step or cycle, press **F4-Add/Del** and select the appropriate option. Note that vertical lines demarcate different cycles, and that steps within the same cycle are not separated by vertical lines. Cycles are numbered sequentially in the bottom left corner of their first step's display.
    - Use the arrow keys to move the selection box between the different fields for each step of your protocol. Set point temperature fields are shown immediately above the temperature plot line, whereas dwell time fields are shown immediately below the temperature plot line. The repeats field, which specifies the number of times a cycle is to occur, followed by an "x", is shown in the bottom right corner of the last step of a cycle.

Thermal Cycler: MyCycler, Biorad, QuickGuide, Page 2/2

- Use the arrow keys to move the selection box between the different fields for each step of your protocol. Set point temperature fields are shown immediately above the temperature plot line, whereas dwell time fields are shown immediately below the temperature plot line. The repeats field, which specifies the number of times a cycle is to occur, followed by an "x", is shown in the bottom right corner of the last step of a cycle.
- To add an increment or decrement option for either time or temperature put the selection box on the desired time or temperature field, press **F3-Option**, and select the desired option. After selecting the desired option, a new field will pop up in the display. In this new field, input the amount of time or degrees Celsius by which you want to increment or decrement each repeat.
- When you are finished editing the protocol, press **F5-Done**.

5. Save the protocol by choosing "Save Protocol As..." from the selection menu. Name the protocol using the **alphanumeric** keys, as described in section 1.5, and press **Enter** when finished.
6. The **Home** screen will appear. Press the F1-**Protocol Library** to access the **Protocol Library**. Using the arrow keys, select the protocol you just created and press **Enter**. A selection menu will appear. Select "Run Protocol".
7. The **Run Setup** screen should appear. Specify whether or not you want a hot start (and the hot start temperature if you picked "YES"), and which temperature measurement mode you want (and the sample volume if you picked "Algorithmic Measurement").
8. Press **F5-Begin Run** to begin the run.

Thermal Cycler: T100, BioRad, Description,Specs

1. **Power on switch on back of unit.**
2. **<u>Follow screen menu for setup and functions.</u>**

Sample capacity	96 x 0.2 ml tubes, 0.2 ml tube strips, or 1 x 96-well plate
Maximum ramp rate, °C/sec	4
Average ramp rate, °C/sec	2.5
Temperature range	4–100°C
Temperature accuracy	±0.5°C of programmed target
Temperature uniformity	±0.5°C well-to-well within 30 sec of arrival at target temperature
Input power	100–150 VAC, 50–60 Hz; 220–240 VAC, 50–60 Hz; 700 W maximum
Display	5.7" VGA color touch screen
Port	1 USB A
Memory	500 typical programs; unlimited with USB flash drive expansion
Dimensions (W x D x H)	26 x 47 x 23 cm (10 x 18 x 9")
Weight	9 kg (20 lb)
Gradient	
Gradient accuracy	±0.5°C of programmed temperature
Row uniformity	±0.5°C well-to-well (within row) within 30 sec
Gradient range	30–100°C
Temperature differential range	1–25°C

Starting the Instrument

Remove the T100 thermal cycler from the box and plug it in. Turn on the power switch on the back of the instrument. The T100 cycler will perform a quick self-test and then display the Home screen (Figure 1).

Setting the Date and Time

First make sure the system clock is correct for your time zone so that all runs are accurately recorded in the run log.

1. In the Home screen, touch **Tools** and then **Settings** to display the instrument settings menu (Figure 2).
2. Touch the fields for Month, Day, Year, Hours, and Minutes and edit the values using the pop-up keypad.
3. Touch **Save** to save the changes.
4. Touch **Home** to return to the Home screen.

Creating a New Protocol

1. To create a new protocol, touch **New Protocol** in the Home screen.
2. The New Protocol screen displays a graphical view of the protocol (Figure 3). Edit the value of any of the following parameters by touching the corresponding field:
   - Temperature
   - Hold time
   - Number of repeats in the GOTO loop
   - Starting step for the GOTO loop
   - Sample volume
   - Lid temperature
3. To select a step, touch anywhere outside the temperature box. The step becomes highlighted to indicate that it is selected. Once a step is selected, you can insert a new step after the selected step, delete the selected step, or configure the options for the step.

Fig. 1. T100 thermal cycler Home screen.

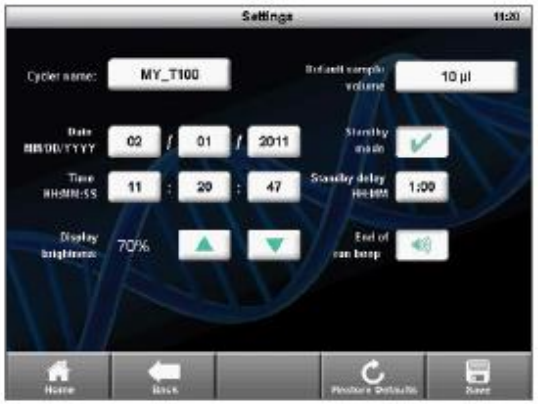


Fig. 2. Settings screen.

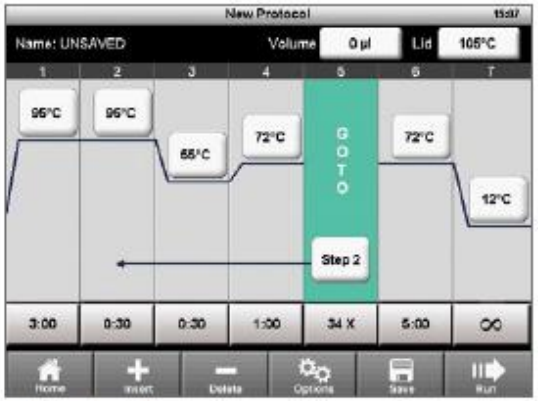


Fig. 3. New Protocol screen showing graphical view of a protocol.

Thermal Cycler: T100, Bio-Rad Quickstart Guide pg 1 of 2

4. To insert a step, touch **Insert**. The screen will display the type of steps to insert (Figure 4). Select **Temperature** for a temperature hold step, **Gradient** for a thermal gradient for protocol optimization, or **GOTO** to insert a GOTO step that will loop back to repeat the specified steps in your protocol (typically denaturation, annealing, and extension).
5. To delete a step, select the step and touch **Delete**.
6. To configure advanced parameters for a step, such as Temperature, Increment, Time, Extend, Gradient, and Ramp rate, select a step and touch **Options** (Figure 5). Program the required parameters as needed.
7. Touch **Save** to select a folder location and save the protocol.
8. Touch **Run** to start the protocol. You can also run a protocol without saving it by touching **Run** at any time while editing.

Running and Editing a Saved Protocol

1. In the Home screen, touch **Saved Protocols**. The T100 cycler organizes all the protocols into folders. A preinstalled library of standard protocols is in the MAIN folder (Figure 6).
2. Select a folder from the Folders column, then select a protocol file from the Files column.
3. Review the selected protocol using the Preview column on the right.
4. Touch **Run** to start the run or touch **Edit** to edit the protocol.

For more information, visit
www.bio-rad.com/web/T100QuickGuide.

This product is covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 6,767,512 and 7,074,367.

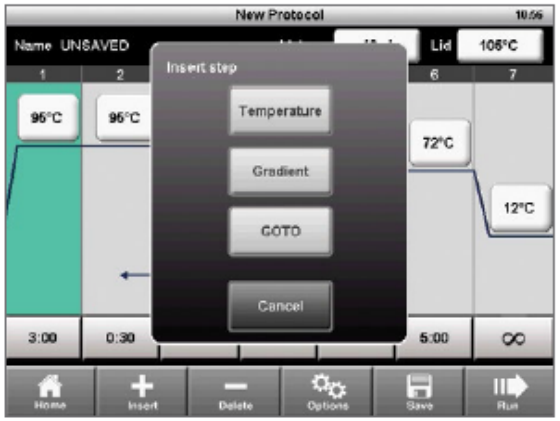


Fig. 4. Insert step window.

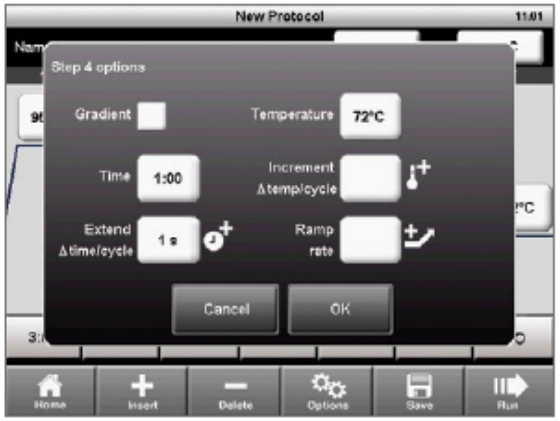


Fig. 5. Options window showing advanced parameters.

Fig. 6. Saved Protocols screen showing the preinstalled library of standard protocols in the MAIN folder.

Thermal Cycler: T100, Bio-Rad Quickstart Guide pg 2 of 2

Thermal Cycler: T100, Biorad, User Manual, QuickstartGuide

Hot link to Bio-Rad T100 User Manual … pdf

Hot link to Bio-Rad T100 QuickStart Guide … pdf

Thermal Cycler: PCR, HYBAID, Omn-E, 96 well

Features:

Heat/cool cycles for performing the polymerase chain reaction (PCR) in micro tubes
96 well heating block for 0.2 ml tubes
power on/off rocker switch in the back of instrument
LCD window for data display
touch button data entry
RS 232 port
Overall dimensions of the unit:

width: 7 in.
depth: 11
height: 8.5
Shipping weight is about 20 pounds.

Thermal Cycler: PCR-Sprint , HYBAID Limited, 20 well,

Picture is similar to, but not the Actual PCR-Sprint device.

Model has 20 wells, one with probe

Thermal Cycler: Cepheid SmartCycler I and II

• Rapid, real-time thermal cycler used for identifying DNA/RNA from prepared biological samples. Delivers highly accurate and consistent test results in as little as 20 minutes. Up to 16 independently programmable reaction sites, can simultaneously run multiple experiments with different protocols and at different times. Each independently programmable module performs four-color, real-time fluorometric detection.

Specifications:

Weight: 22 lbs. Measurements: 12 W x 10 L x 12 H in. Electrical: 100-240 VAC, 50-60 Hz, 350 Watts, Max.current = 7A

Heating ramp rates (max.): 10° C/sec from 50° C to 95° C

Cooling ramp rates (max.): 2.5° C/sec from 95° C to 50° C

Temperature duration accuracy: 1.0 sec from programmed time

Temperature accuracy: 0.5° C from 60° C to 95° C

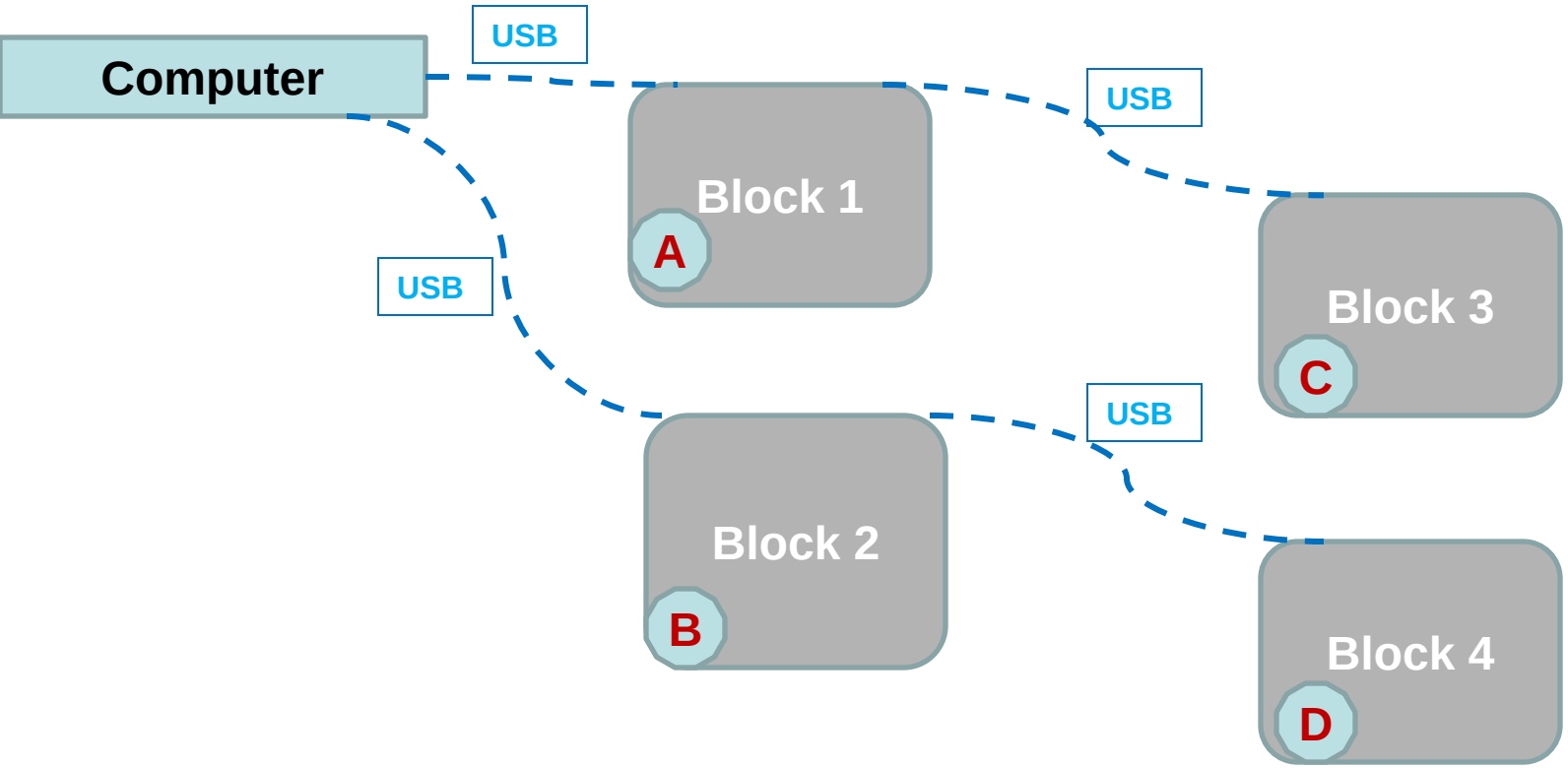
Melt curve programmable ramp rates: 0.1° C/sec to 1.0° C/sec

• On-Off switch on Top

• Block ID, other info displayed

REAR LOWER
- **USB connectors and**
- **110V AC Power**

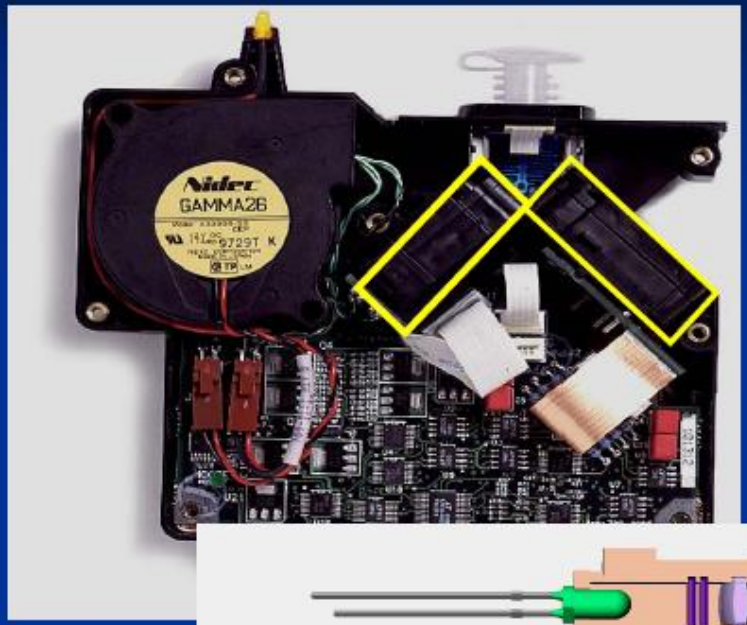
Thermal Cycler: Cepheid Smartcycler, Configuration Setup



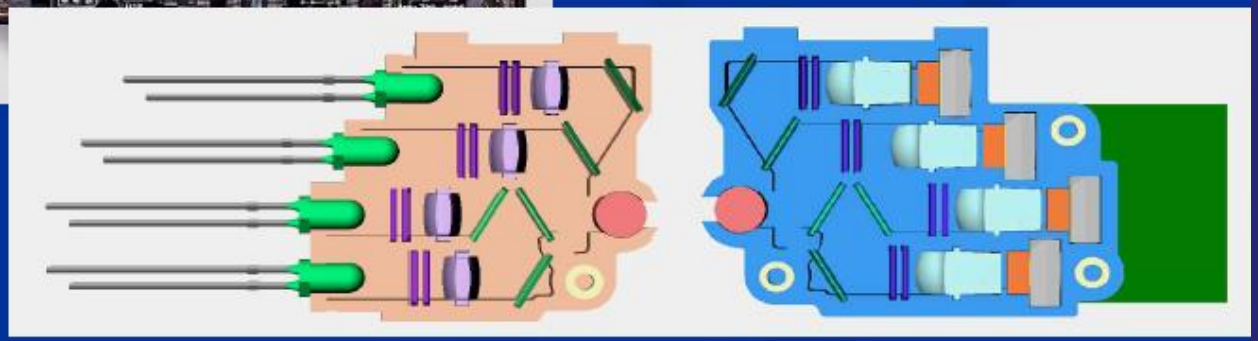
1. If using more than one Block, use a “daisy chain” with USB connections as shown above.
2. It is not required to daisy chain 110V power. If used, do not connect more than 2 blocks.
3. Note that the USB on Blocks 1 and 2 should be directly connected to the computer.
4. Connect each Block to an 110 V AC power source, DO NOT TURN ON YET.
5. Turn on in sequence: Block 1 first, then Block 2, then Block 3 and Block 4 if appropriate
6. Activate the Smart Cycler Software on the Computer. Splash screen on each block will blink and then switch to a sequence of A,B, C, etc.
5. Letter “A” will appear on Block 1 and “B” on Block 2 , etc.
6. CLOSE Software before turning off or disconnecting any Blocks

Thermal Cycler: SmartCycler I-Core Module Features

I-CORE™ Module



- Auto Advance
- Multiplex PCR
  - Detecting multiple targets
  - Internally controlled assays



October 17, 2005

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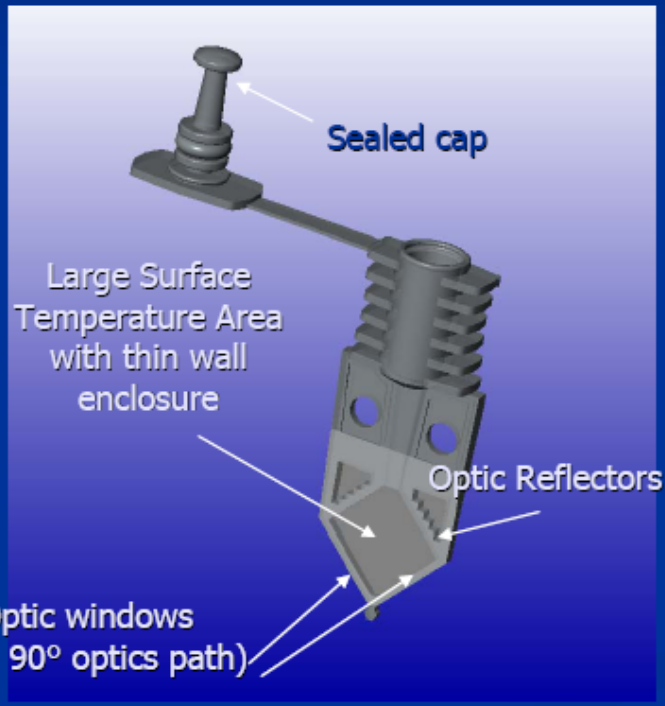
Thermal Cycler: SmartCycler Reaction Tube Features

SmartCycler® Reaction Tube


Sealed cap
Large Surface Temperature Area with thin wall enclosure
Optic Reflectors
Optic windows (with 90° optics path)

Designed for :

- High surface area to volume ratio
- Superior thermal response/control
- Max fluorescence signal
- Entire volume interrogated
- No X-contamination
- Indestructible

October 17, 2005

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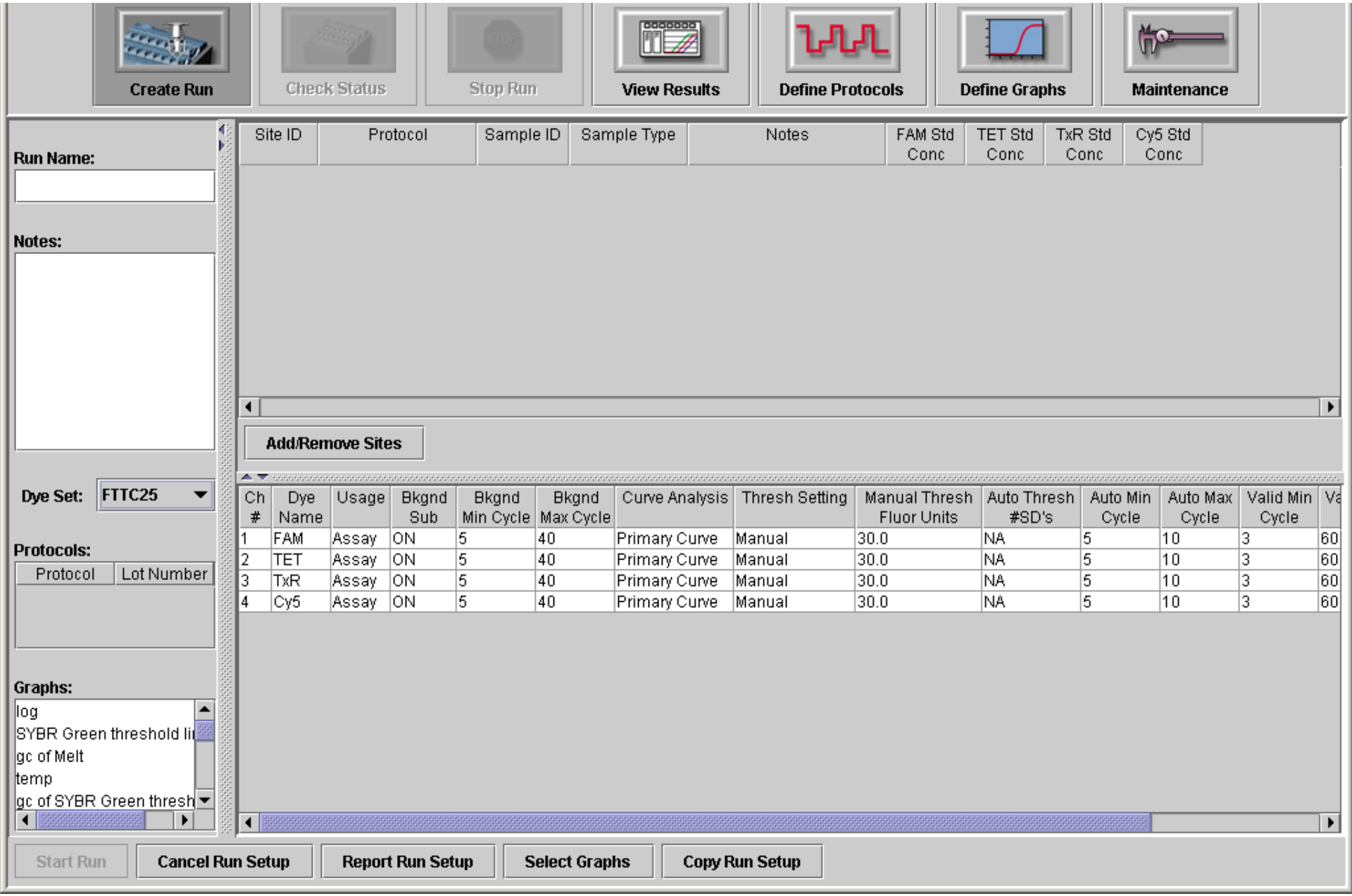
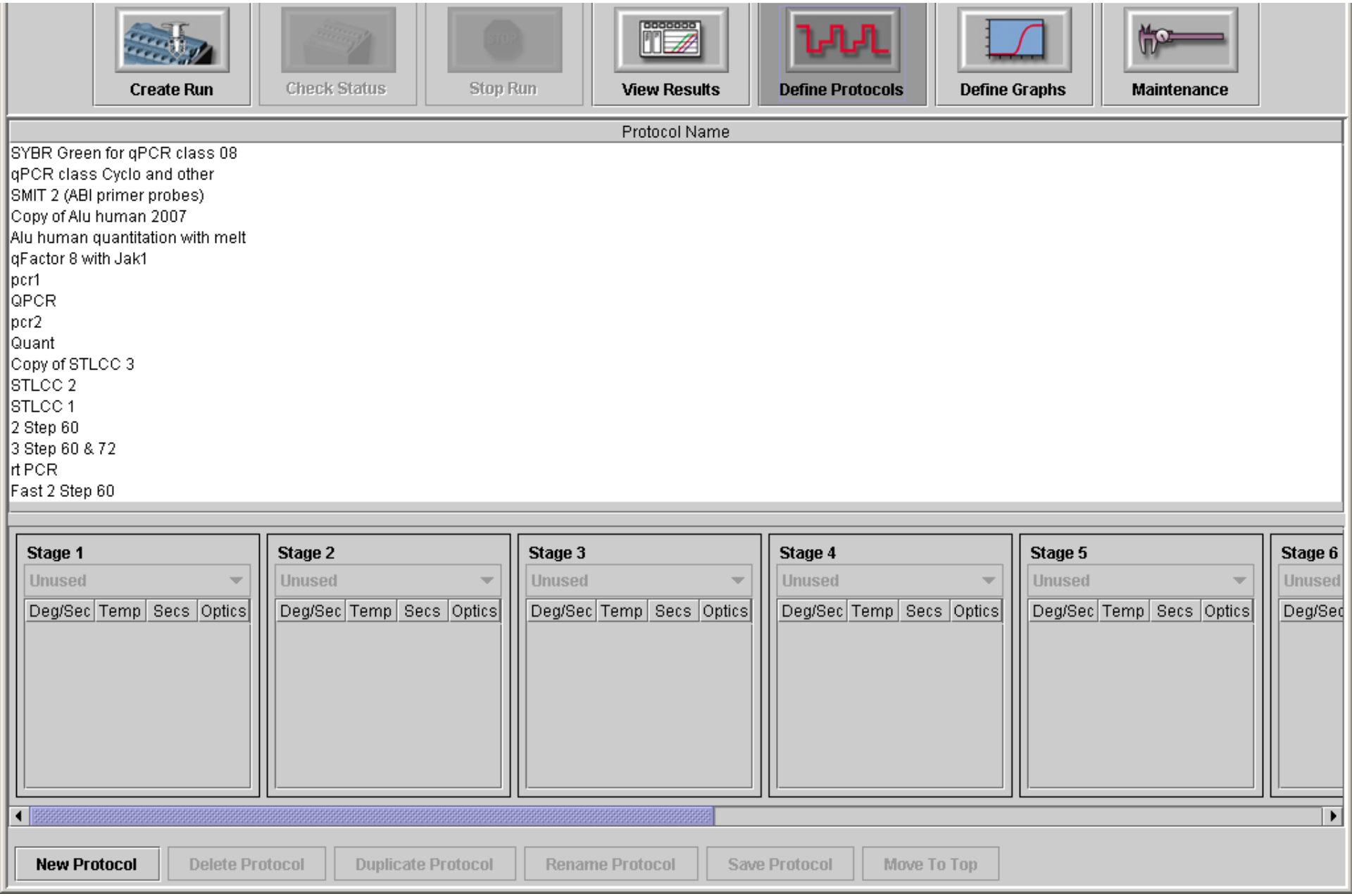
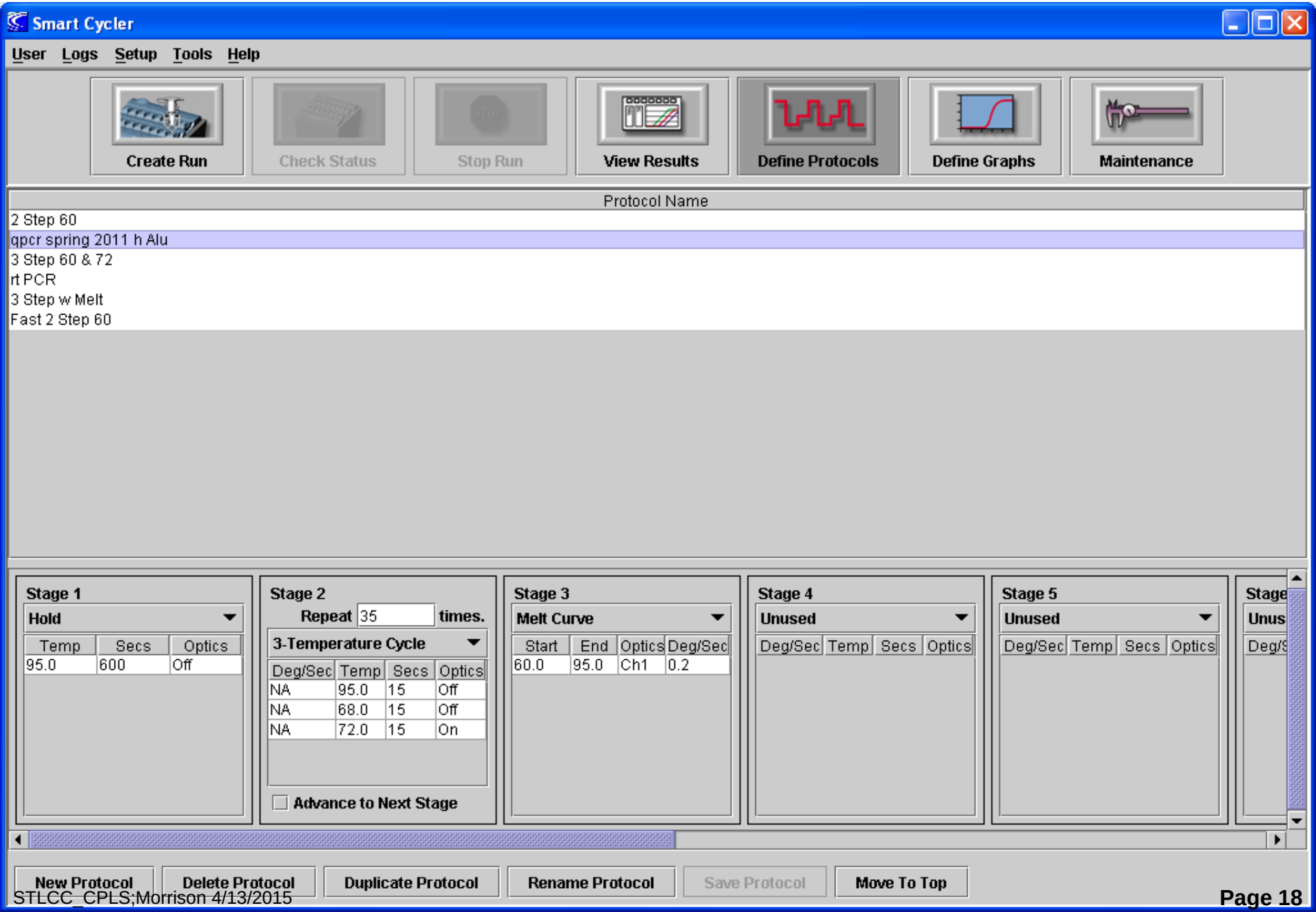
Thermal Cyclers: Smartcycler, Create Run Example


Create Run
Check Status
Stop Run
View Results
Define Protocols
Define Graphs
Maintenance
Run Name:
Notes:
Dye Set:
FTTC25
Protocols:
Protocol
Lot Number
Graphs:
log
SYBR Green threshold li
gc of Melt
temp
gc of SYBR Green thresh
Site ID
Protocol
Sample ID
Sample Type
Notes
FAM Std Conc
TET Std Conc
TxR Std Conc
Cy5 Std Conc
Add/Remove Sites
Ch # | Dye Name | Usage | Bkgnd Sub | Bkgnd Min Cycle | Bkgnd Max Cycle | Curve Analysis | Thresh Setting | Manual Thresh Fluor Units | Auto Thresh #SD's | Auto Min Cycle | Auto Max Cycle | Valid Min Cycle
1 | FAM | Assay | ON | 5 | 40 | Primary Curve | Manual | 30.0 | NA | 5 | 10 | 3 | 60
2 | TET | Assay | ON | 5 | 40 | Primary Curve | Manual | 30.0 | NA | 5 | 10 | 3 | 60
3 | TxR | Assay | ON | 5 | 40 | Primary Curve | Manual | 30.0 | NA | 5 | 10 | 3 | 60
4 | Cy5 | Assay | ON | 5 | 40 | Primary Curve | Manual | 30.0 | NA | 5 | 10 | 3 | 60
Start Run
Cancel Run Setup
Report Run Setup
Select Graphs
Copy Run Setup

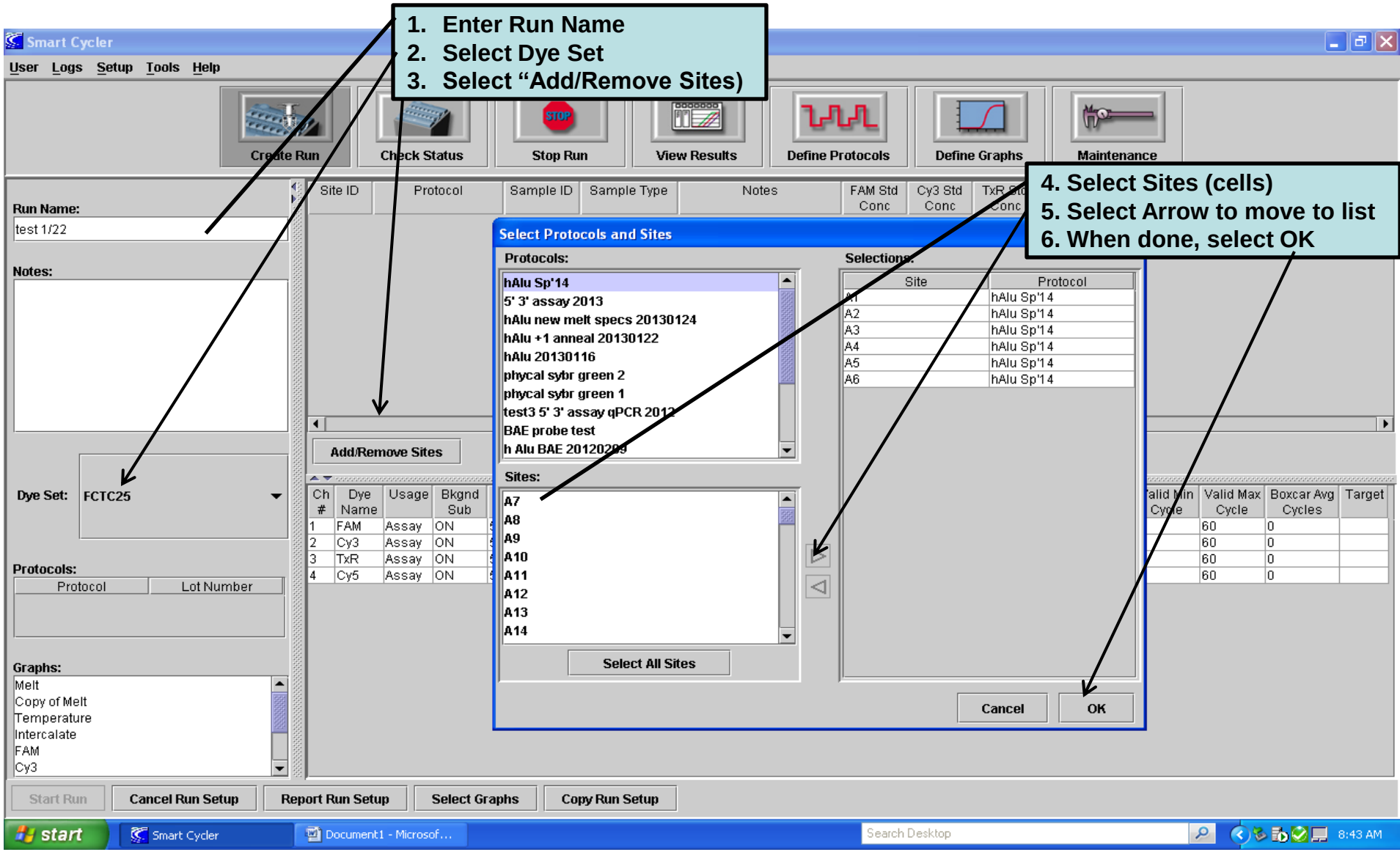
Thermal Cyclers: Smartcycler, Define Protocol Example



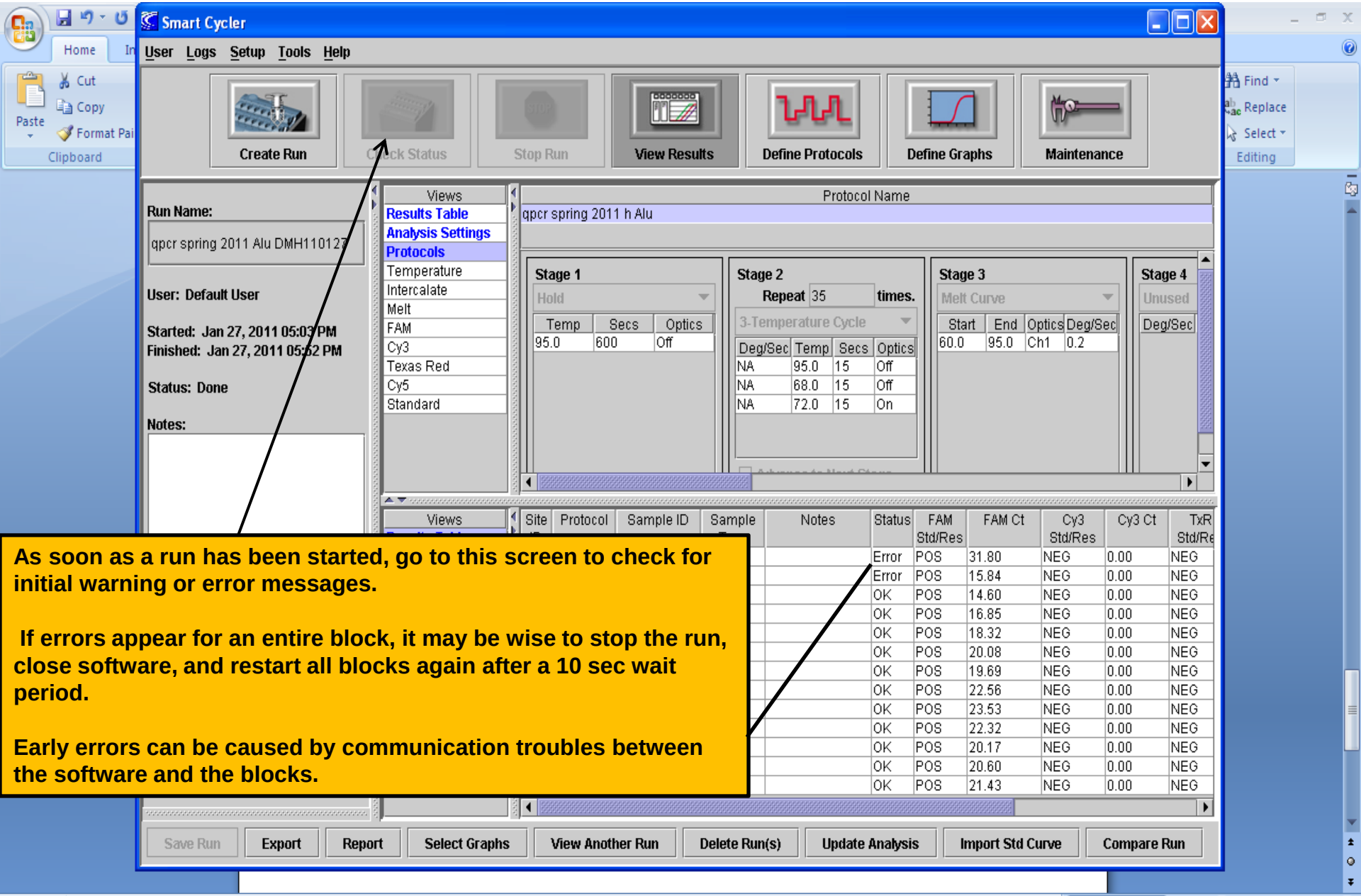
Thermal Cyclers: Smartcycler, Define Protocol, Enter/View Stages



Thermal Cyclers: Smartcycler, Create Run, Add/Remove Sites



Thermal Cyclers: Smartcycler, Check Status, Block/Cell Errors

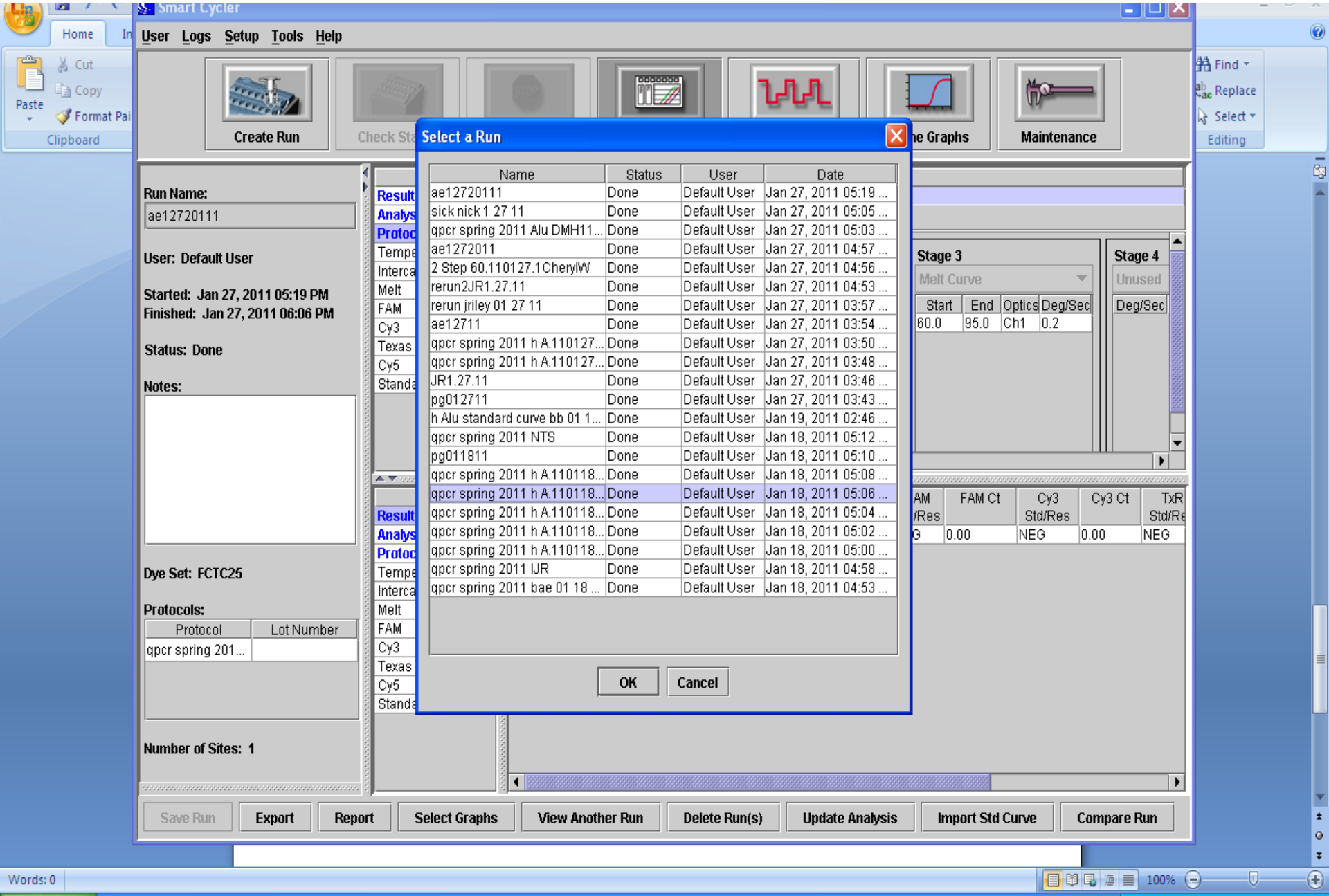


As soon as a run has been started, go to this screen to check for initial warning or error messages.

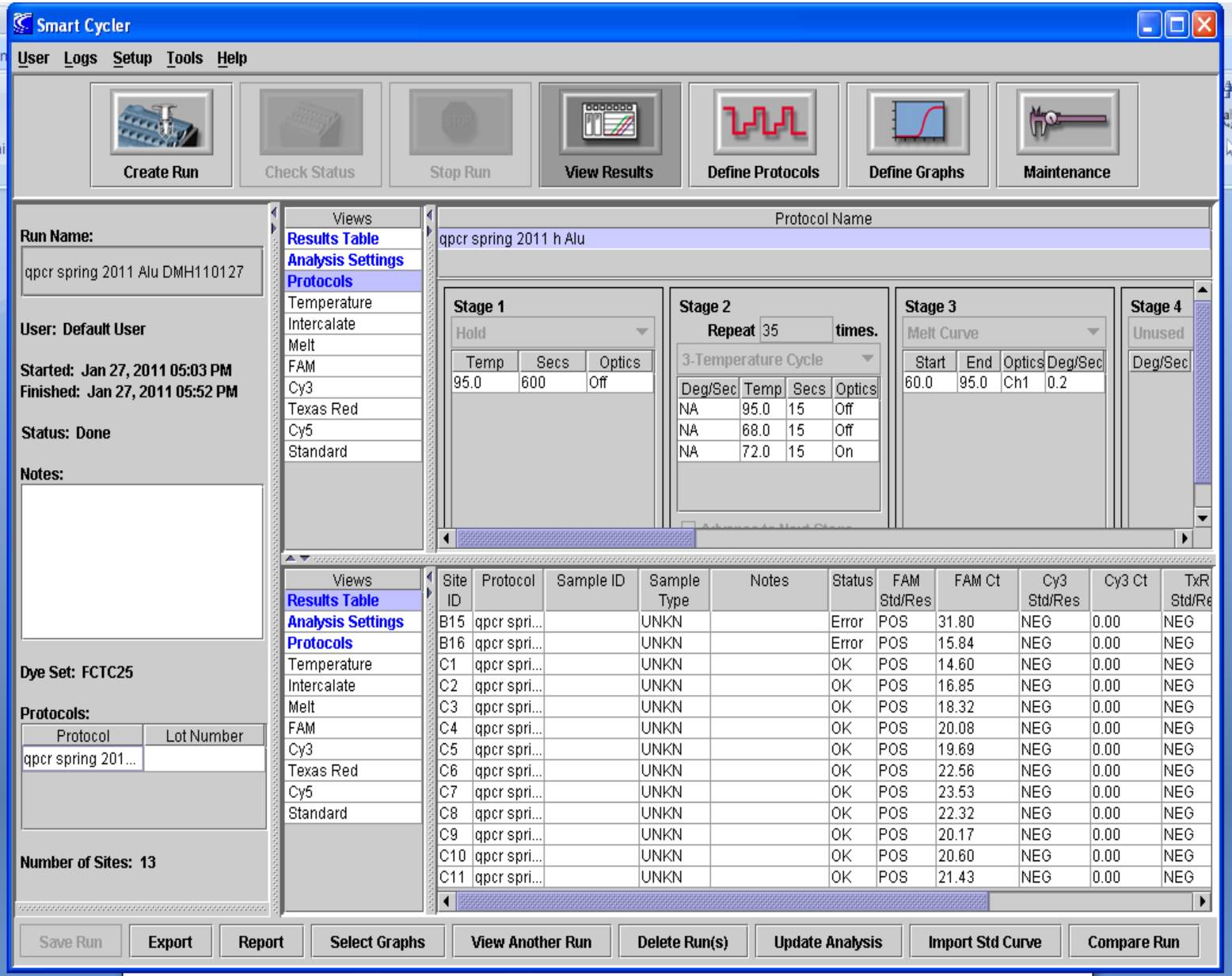
If errors appear for an entire block, it may be wise to stop the run, close software, and restart all blocks again after a 10 sec wait period.

Early errors can be caused by communication troubles between the software and the blocks.

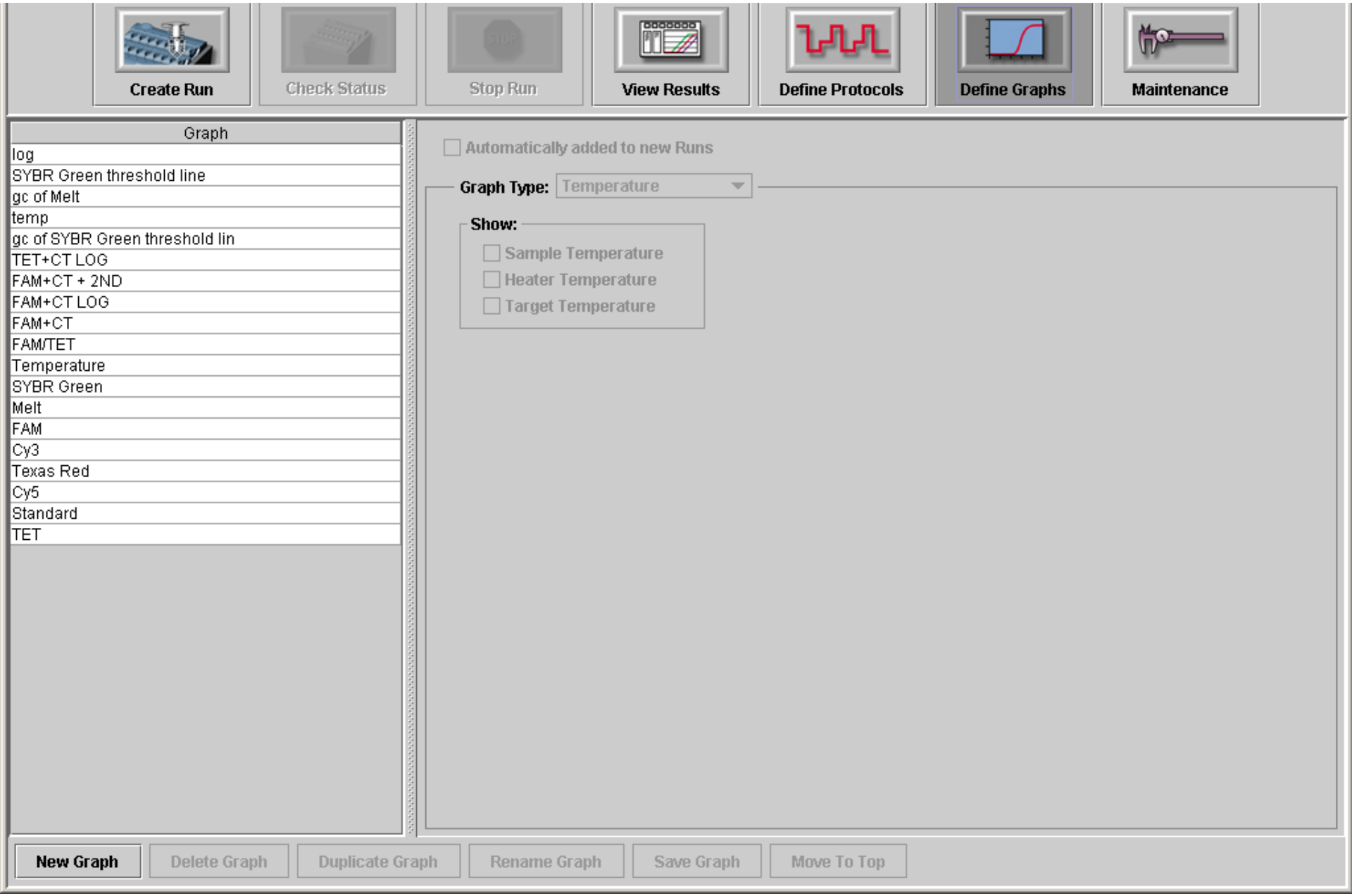
Thermal Cyclers: Smartcycler, View Results, Select Run


Smart Cycler
User Logs Setup Tools Help
Create Run
Maintenance
Run Name:
ae12720111
User: Default User
Started: Jan 27, 2011 05:19 PM
Finished: Jan 27, 2011 06:06 PM
Status: Done
Notes:
Dye Set: FCTC25
Protocols:
Protocol
Lot Number
qpcr spring 201...
Number of Sites: 1
Select a Run
Name
Status
User
Date
ae12720111 Done Default User Jan 27, 2011 05:19 ...
sick nick 1 27 11 Done Default User Jan 27, 2011 05:05 ...
qpcr spring 2011 Alu DMH11... Done Default User Jan 27, 2011 05:03 ...
ae1272011 Done Default User Jan 27, 2011 04:57 ...
2 Step 60.110127.1 CherylW Done Default User Jan 27, 2011 04:56 ...
rerun2JR1.27.11 Done Default User Jan 27, 2011 04:53 ...
rerun jriley 01 27 11 Done Default User Jan 27, 2011 03:57 ...
ae12711 Done Default User Jan 27, 2011 03:54 ...
qpcr spring 2011 h A.110127... Done Default User Jan 27, 2011 03:50 ...
qpcr spring 2011 h A.110127... Done Default User Jan 27, 2011 03:48 ...
JR1.27.11 Done Default User Jan 27, 2011 03:46 ...
pg012711 Done Default User Jan 27, 2011 03:43 ...
h Alu standard curve bb 01 1... Done Default User Jan 19, 2011 02:46 ...
qpcr spring 2011 NTS Done Default User Jan 18, 2011 05:12 ...
pg011811 Done Default User Jan 18, 2011 05:10 ...
qpcr spring 2011 h A.110118... Done Default User Jan 18, 2011 05:08 ...
qpcr spring 2011 h A.110118... Done Default User Jan 18, 2011 05:06 ...
qpcr spring 2011 h A.110118... Done Default User Jan 18, 2011 05:04 ...
qpcr spring 2011 h A.110118... Done Default User Jan 18, 2011 05:02 ...
qpcr spring 2011 h A.110118... Done Default User Jan 18, 2011 05:00 ...
qpcr spring 2011 IJR Done Default User Jan 18, 2011 04:58 ...
qpcr spring 2011 bae 01 18 ... Done Default User Jan 18, 2011 04:53 ...
OK
Cancel
Stage 3
Melt Curve
Start
End
Optics
Deg/Sec
60.0
95.0
Ch1
0.2
Stage 4
Unused
Deg/Sec
FAM Ct
Cy3 Std/Res
Cy3 Ct
TxR Std/Re
0.00
NEG
0.00
NEG
Save Run
Export
Report
Select Graphs
View Another Run
Delete Run(s)
Update Analysis
Import Std Curve
Compare Run

Thermal Cyclers: Smartcycler, View Results, Run Selected, Display



Thermal Cyclers: Smartcycler, Define Graphs Example



Thermal Cycler: Smartcycler, Exported Results File

Run Summary	(Smart Cycler 2.0d)
Run Nan	Cheryl lab2 part 2
Started	#########
Number	13

Results Table

Site ID	Protocol	Sample ID	Sample Ty	Note	Status	FAM Std/Res	FAM Ct	Cy3 Std/Res	Cy3 Ct	TxR Std/Re	TxR Ct	Cy5 Std/R	Cy5 Ct	Melt Peak1
C11	qpcr spring 2011 h Alu		UNKN		OK	POS	28.99	NEG	0	NEG	0	NEG	0	81.96
C12	qpcr spring 2011 h Alu		UNKN		OK	NEG	0	NEG	0	NEG	0	NEG	0	82.42
C13	qpcr spring 2011 h Alu		UNKN		OK	POS	21.86	NEG	0	NEG	0	NEG	0	81.84
C14	qpcr spring 2011 h Alu		UNKN		OK	POS	21.52	NEG	0	NEG	0	NEG	0	82.13
C15	qpcr spring 2011 h Alu		UNKN		OK	POS	31.76	NEG	0	NEG	0	NEG	0	82.97
C16	qpcr spring 2011 h Alu		UNKN		OK	POS	29.92	NEG	0	NEG	0	NEG	0	82.31
D1	qpcr spring 2011 h Alu		UNKN		OK	POS	33.75	NEG	0	NEG	0	NEG	0	82.33
D2	qpcr spring 2011 h Alu		UNKN		OK	POS	34.58	NEG	0	NEG	0	NEG	0	82.71
D3	qpcr spring 2011 h Alu		UNKN		OK	POS	25.91	NEG	0	NEG	0	NEG	0	82.27
D4	qpcr spring 2011 h Alu		UNKN		OK	POS	27.76	NEG	0	NEG	0	NEG	0	83.03
D5	qpcr spring 2011 h Alu		UNKN		OK	POS	30.45	NEG	0	NEG	0	NEG	0	82.25
D6	qpcr spring 2011 h Alu		UNKN		OK	POS	29.59	NEG	0	NEG	0	NEG	0	82.58
D7	qpcr spring 2011 h Alu		UNKN		OK	NEG	0	NEG	0	NEG	0	NEG	0	

Analysis Settings

Ch #	Dye Name	Usage	Bkgnd Sub	Bkgn	Bkgnd	Curve Analysi	Thresh Se	Manual Thre	Auto Th	Auto Min C	Auto M	Valid Min	Valid M	Boxcar Avg	Target
1	FAM	Assay	ON	5	40	Primary Curve	Manual	30	NA	5	10	3	60	0	
2	Cy3	Assay	ON	5	40	Primary Curve	Manual	30	NA	5	10	3	60	0	
3	TxR	Assay	ON	5	40	Primary Curve	Manual	30	NA	5	10	3	60	0	
4	Cy5	Assay	ON	5	40	Primary Curve	Manual	30	NA	5	10	3	60	0	

Melt Data

Instrument C

C11 Tem	C11 Optics	C11 Optics D	C12 Temp	C12 C	C12 Op	C13 Temp	C13 Optics	C13 Optics D	C14 Ten	C14 Optics	C14 Opt	C15 Temp	C15 Opt	C15 Optics	C16 Temp	C16 Optics
60.29	294	2.5	60.44	105	10	60.38	419	0	60.44	424	2.5	60.32	207	2.5	60.42	234
60.5	295	2.5	60.62	108	10	60.54	421	0	60.62	424	2.5	60.51	208	2.5	60.64	235
60.7	295	5	60.86	109	7.5	60.74	419	7.5	60.84	423	7.5	60.69	208	0	60.83	234
60.87	293	7.5	61.01	111	7.5	60.94	418	7.5	61.01	421	12.5	60.85	208	0	61.03	233

Thermal Cyclers: Smartcycler, Misc Dye Info

Cy3 and Cy5 are reactive water-soluble fluorescent dyes of the cyanine dye family. Cy3 dyes are green (~550 nm excitation, ~570 nm emission and therefore appear green), while Cy5 is fluorescent in the red region (~650/670 nm) but absorbs in the orange region (~649 nm)[3] .[4] They are usually synthesized with reactive groups on either one or both of the nitrogen side chains so that they can be chemically linked to either nucleic acids or protein molecules. Labeling is done for visualization and quantification purposes. They are used in a wide variety of biological applications including comparative genomic hybridization and in gene chips, which are used in transcriptomics. They are also used to label proteins and nucleic acid for various studies including proteomics and RNA localization.[5]

Texas Red or sulforhodamine 101 acid chloride is a red fluorescent dye, used in histology for staining cell specimens, for sorting cells with fluorescent-activated cell sorting machines, in fluorescence microscopy applications, and in immunohistochemistry.[1][2] Texas Red fluoresces at about 615 nm, and the peak of its absorption spectrum is at 589 nm, making it more purple than red, actually. The powder is dark purple. Solutions can be excited by a dye laser tuned to 595-605 nm, or less efficiently a krypton laser at 567 nm. The absorption extinction coefficient at 596 nm is about 85,000 $M^{-1}cm^{-1}$.

FAM is the most commonly used fluorescent dye for oligonucleotides attachment. It exhibits high quantum yields and it is compatible with most fluorescence detection equipment. Since it has decreased fluorescence below pH 7 it is typically used in the pH range 7.5 - 8.5.

Thermal Cycler-: BioRad Model PTC-1148

On-Off switch on Rear panel

Optional: USB and Firewire ports on rear panel

Membrane Keypad; controls setup and operation

The MJ Mini 48-well gradient thermal cycler offers individual researchers the quality and features of advanced cyclers. The MJ Mini cycler offers thermal gradient technology — allowing you to optimize reactions for maximum efficiency and accurate quantitation. And with the addition of the MiniOpticon two-color real-time PCR detection system, the MJ Mini cycler is converted to the most compact real-time system available.

Hotlink to Biorad MJ Mini Gradient User Manual .. 85pgs pdf

Thermal Cycler-: BioRad PTC-1148, Control Panel

Figure 1. Front view of the MJ Mini thermal cycler.

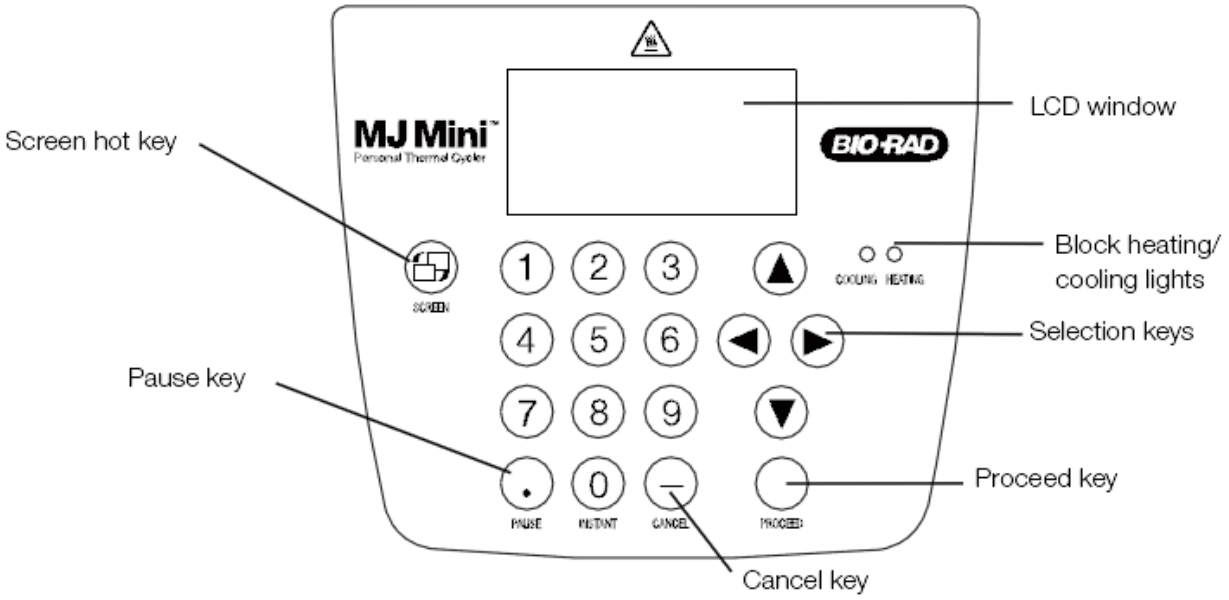


Figure 2. Control panel of the MJ Mini thermal cycler.

Thermal Cycler-: BioRad PTC-1148, Main Menu

Understanding the Main Menu

The Main Menu is the common access point to all programming and machine configuration screens:

- RUN: Executes a program.
- NEW: Allows new programs to be entered.
- EDIT: Allows modification of stored programs.
- VIEW: Accesses utilities that display a program's steps.
- FILES: Accesses file management utilities.
- TOOLS: Accesses machine configuration screens.

Using the Control Panel

The control panel (see fig. 2) includes operation keys, status indicator lights for heating and cooling, an LCD window for displaying programming and machine status text, and a numeric keypad for entering values into programs.

Operation Keys

- **Select keys** (left, right, up, down arrows): Move the cursor one space or option in the LCD window.
- **Proceed/Enter**: Accepts a selected menu or screen option; during a protocol run, advances the program to its next step.
- **Cancel**: Terminates a running protocol; during program creation or editing, cancels the last entry.
- **Pause**: Pauses a protocol during execution.
- **Instant**: Initiates a program that sets up the MJ Mini as a simple incubator.

Thermal Cycler-: BioRad PTC-1148, Running Protocol

Running a protocol on the MJ Mini thermal cycler involves two steps:

1. Choosing a stored protocol to run
2. Setting up the temperature control method

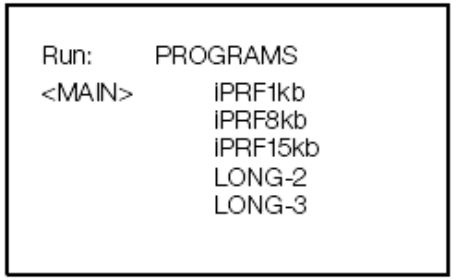
Either a custom-designed protocol or one of the factory-installed resident protocols may be run. See appendix A for descriptions of the resident protocols, which may be edited to fit your needs (see chapter 7 for instructions on editing stored programs). All the factory-installed protocols are stored in a single folder, called the <MAIN> folder, at the time of shipping.

Choosing a Stored Protocol to Run

With the Main Menu displayed, select Run, then press «Proceed». One of two types of screen will be displayed, depending on whether custom protocols have been stored in the <MAIN> folder or in custom folders:

- **If all protocols have been stored in the <MAIN> folder:**

A screen listing the protocols will be displayed. Custom protocols are listed first, followed by the factory-installed programs:

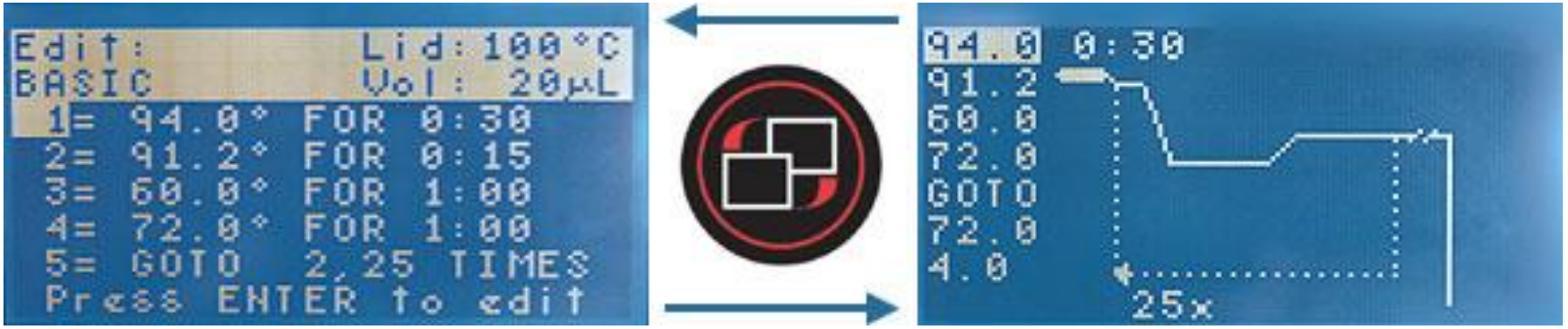


Thermal Cycler-BioRad PTC-1148; Key Features

- Thermal gradient technology that permits simultaneous incubation at 8 different temperatures, for optimizing reactions in a single run
- Ability to upgrade to the MiniOpticon 2-color real-time PCR system
- Superior temperature performance that matches or exceeds that of high-performance 96-well thermal cyclers
- High-performance cycling options, including calculated or block temperature control, automatic temperature increment, automatic time extension, and adjustable ramp rates
- Fully adjustable heated lid that accommodates both full-height and low-profile vessels (for low-volume reactions, <20 µl)
- Durable thermoelectric Peltier modules for lasting performance
- **A 6 x 8 sample array that accommodates 0.2 ml tubes, tube strips, 48-well plates, and up to twelve 0.5 ml tubes**
- Memory for up to 400 typical programs
- Large 64 x 128 backlit semigraphical display with graphical editing for rapidly modifying programs
- Power protection so programs will resume after power outages

Thermal Cycler- Gradient: PTC-1148 Control Options

- The MJ Mini cycler offers two easy programming options: A graphic mode allows you to quickly modify basic cycling parameters, while a menu-based text mode allows you to efficiently enter advanced options. During a PCR run, pressing a single key changes the display to show a list of the program's steps; a graphical representation of the protocol's progress with real-time displays of the block, lid, and sample temperatures; or the time remaining in the run.

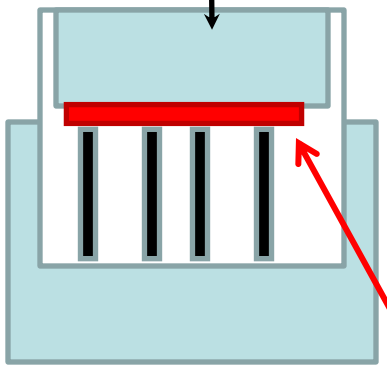


Thermal Cycler- Mini; MJ Research Model PTC-150

On-Off switch on Rear panel

Hot-Bonnett, optional lid

Hot-Bonnett spring-loaded internal seal lid



Membrane Keypad; controls setup and operation

If there is a beeping alarm when The Hot-bonnet is in use, there is usually an issue that the tubes are not pressing squarely on the bonnet internal lid. This internal spring-loaded lid must be depressed enough to indicate that a good seal is present.

You may consider adding a heat resistant washer or thin flat liner to add thickness to the overall tube height and thus seal the hotbonnet lid.

Features Fast Ramping: 60: up to 1C/ sec: 96: up to 1.4C/sec * Memory stores up to 80 programs * Method of heating/ cooling: Peltier-Joule * Temperature control methods: Block or calculated * Heated lid (optional):Available on new units, or can be factory retrofit * Thermal range:0C - 105C * Temperature accuracy: +/- 0.3C of programmed target at 90C, NIST-traceable * Temperature uniformity: +/-0.4C well-to-well within 30 sec of arrival at 90C * Block: 16 x 0.5 ml tubes

Hotlink to MJ Research PTC-150 User Manual…. 3.5mb pdf

Thermal Cycler: PCR, MJResearch (Bio-Rad) DYAD PTC-200

Model: PTC-220, SN DY002678
Alpha: SN AL063359, AL062992
From FV to BRDG Aug 2010

Dual block DNA Engine thermal cycler features numeric keypad with 1/4in. VGA screen, and touch pad to move cursor arrow in the VGA screen, USB mouse port, RS232, and Ethernet port, **200-250V, 50/60HZ,** 1600W, alpha units are available for this system

Requires: 220V/20A; L620P plug 11-20R receptacle.

Stratagene Mx3005P

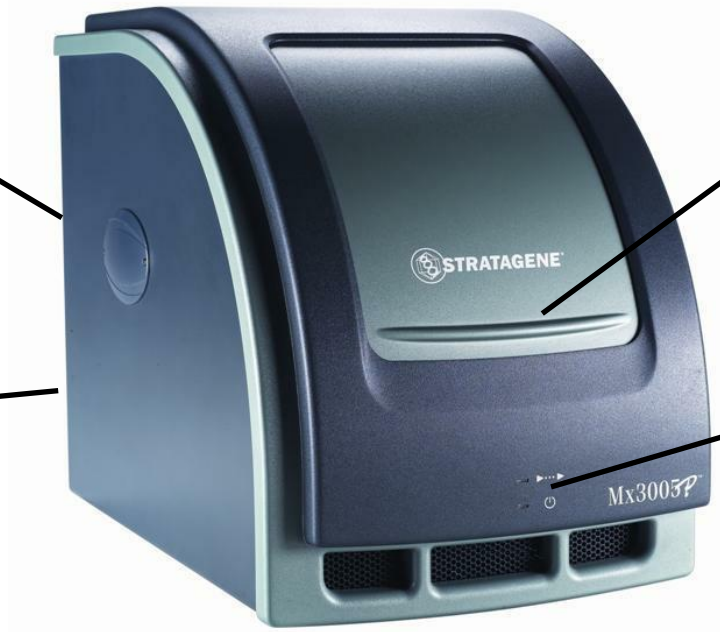
Thermal Cycler: Agilent -Stratagene Mx3005P

Prepared by: Bob Morrison
FVCC, Instrumentation Specialist
June 09, Aug 09

Thermal Cycler: Stratagene Mx3005P

RS232 Serial out port to MxPro computer/controller

On/Off toggle at rear lower near power plug



Sliding Door: access to plate and heating elements.
CAUTION: Avoid contact with anything other than plate.

Upper Light: Green, connected to host CPU

Lower light; Power on/off

Link to Stratagene Mx3000P User Guide … pdf

Instrument:
Excitation source: Quartz Tungsten Halogen lamp
Detector: 1 scanning photomultiplier tube (PMT)
Multiplexing capabilities: 4 targets in the same tube
Thermal system: solid-state, Peltier-based
Embedded computer safeguards data
Filters: Dual customizable filter wheels with four user-selected filters*
Tube/plate formats: 200ul, 96-well format, optimized for 25ul sample size

System Specifications
Dynamic Range: 10 orders of magnitude
Excitation Range: 350nm-750nm
Emission Range: 350nm-700nm
Temperature Uniformity: +/- .25°C at 72 ˚C
Temperature Ramp Rate: up to 2.5°C/second
Temperature Range: 25-95°C
Dimensions: 13¨ (33cm) W x 18¨ (46cm) D x 17¨ (43cm) H, weight: 44 lbs (20 kilograms)

96-WELL QPCR PLATES, NON-SKIRTED
401333 25 in stock $129.00
96-Well Non-Skirted Polypropylene PCR Plate for use with Mx3000P®/Mx3005P® QPCR Systems. Compatible with our Mx3000P®/Mx3005P® Optical Strip Caps, catalog number 401425.

96-WELL QPCR PLATES, SEMI-SKIRTED
401334 25 in stock $129.00
96-Well Semi-Skirted Polypropylene PCR Plate for use with Mx3000P®/Mx3005P® QPCR Systems. Compatible with our Mx3000P®/Mx3005P® Optical Strip Caps, catalog number 401425.

STLCC_CPLS;Morrison 4/13/2015

Thermal Cycler: Stratagene; MxPro QPCR Software

• Perform multiple sub-experiments on a single plate
• Real-time amplification plots viewed and results analyzed during run
• Standard curves plotted for multiple dyes on a single chart
• View all dyes on one amplification plot, or view each single dye in multiplex experiments
• View and analyze data in multiple formats including amplification plots, scatter plots, fluorescence intensity screens, final call results, melting curves, annealing range, and text reports
• All results available as raw data. Easily export data to Excel, PowerPoint and text files

• Flexible analysis options: amplification plots, scatter plots, standard curve charts, fluorescence intensity, final call results, melting curve, annealing range and text report
• View all dyes for multiplex experiments on one amplification plot and/or standard curve chart or view individual plots for each individual dye
• Melting curve analysis with automatic melting temperature (Tm) calculation
• Allelic discrimination by threshold cycle or by endpoint fluorescence values with auto-call feature
• Export chart and text report data directly from display screen to Microsoft® Excel, PowerPoint, text and image fi
• Software can link up to six (6) Mx3005P and Mx300P instruments with one computer

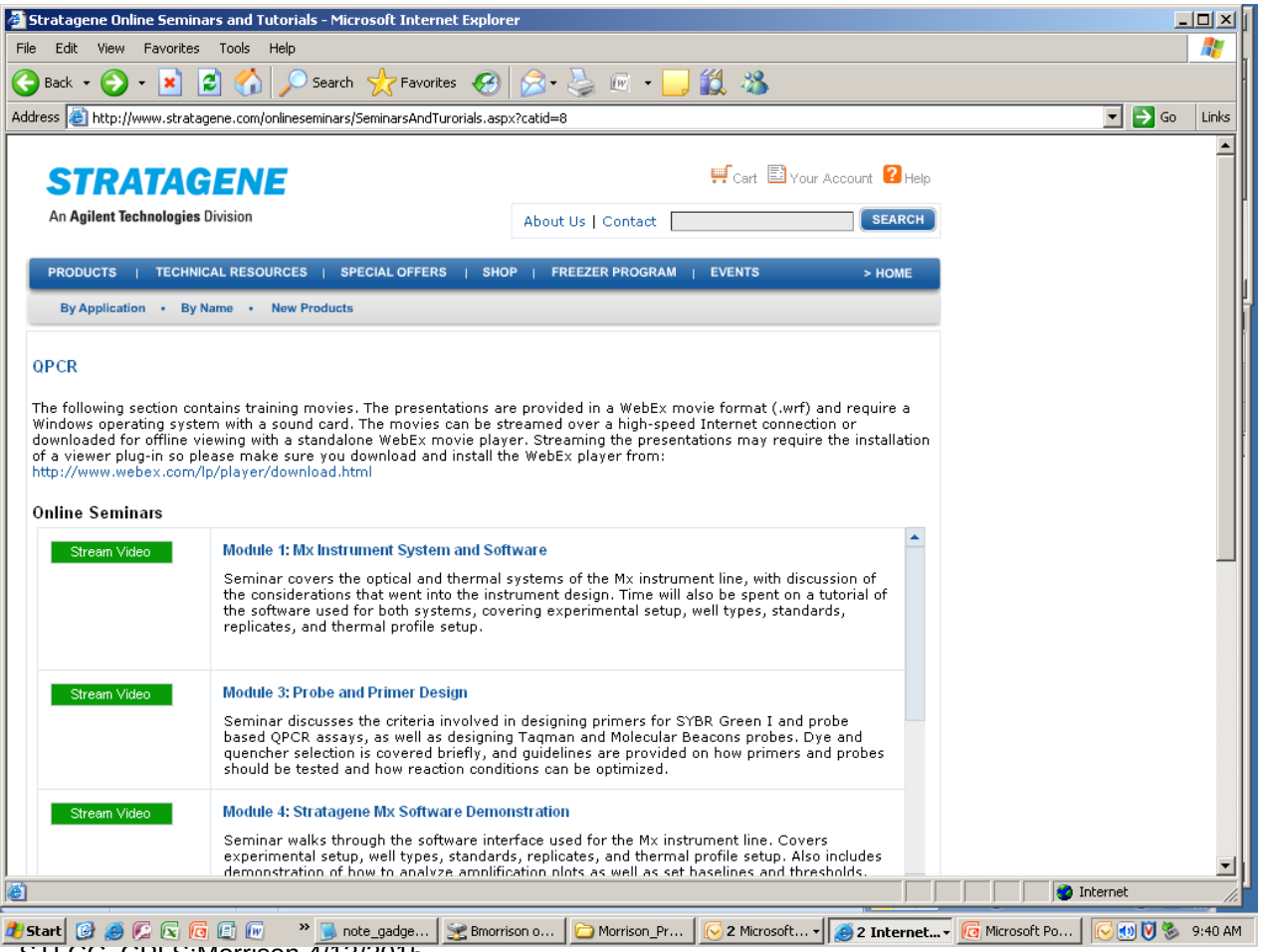
Link to Stratagene Introduction to Quantitative PCR … pdf (Agilent website)

Thermal Cycler: Stratagene MxPro Video Training

A variety of online seminars and tutorials is available online in streaming video format. You must access the site below and register or login as
ID: bmorrison@stlcc.edu
Password: 15agilent

Link to Stratagene Video Training Website

http://www.stratagene.com/onlineseminars/SeminarsAndTurorials.aspx?catid=8


Stratagene Online Seminars and Tutorials - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://www.stratagene.com/onlineseminars/SeminarsAndTurorials.aspx?catid=8
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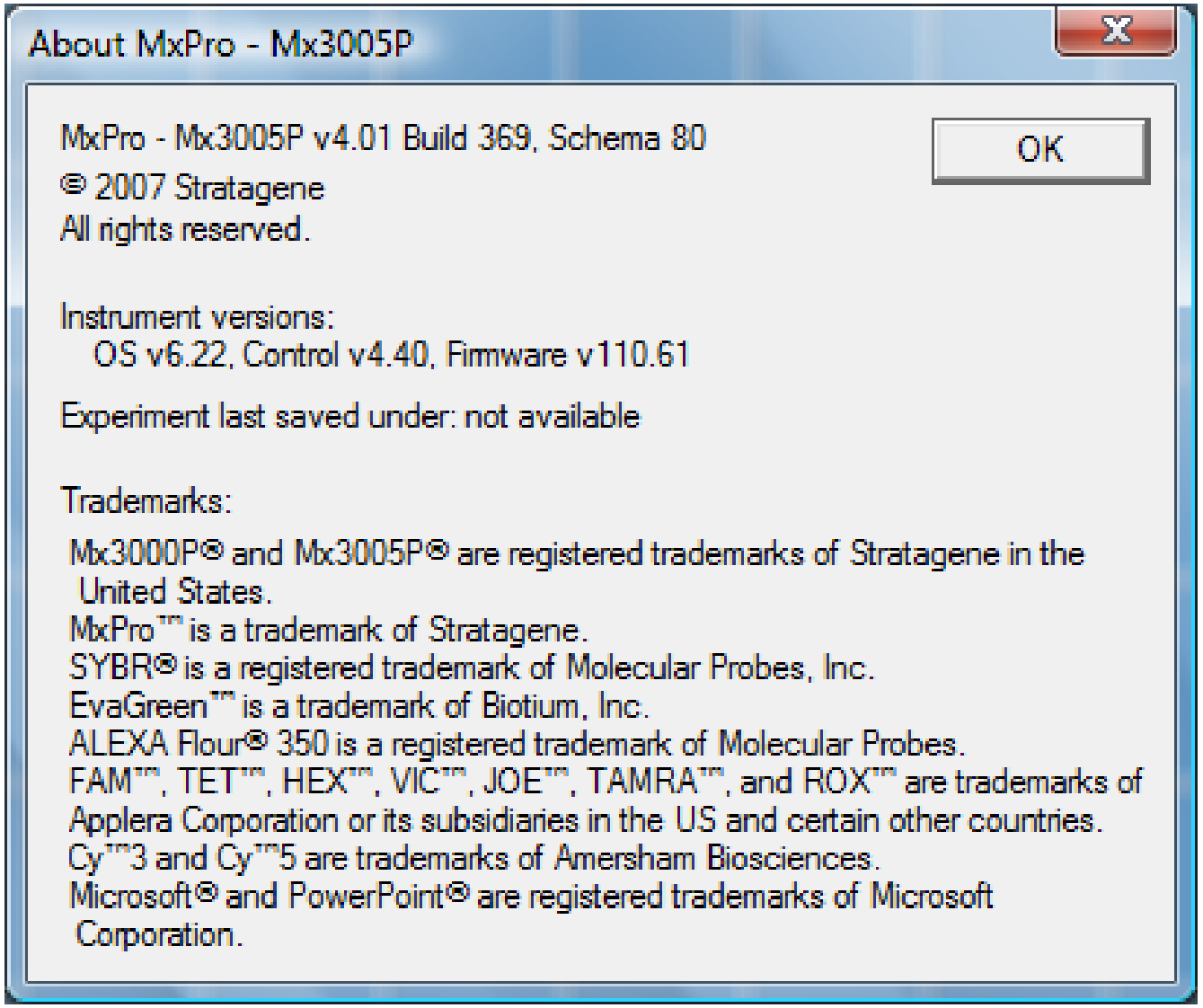
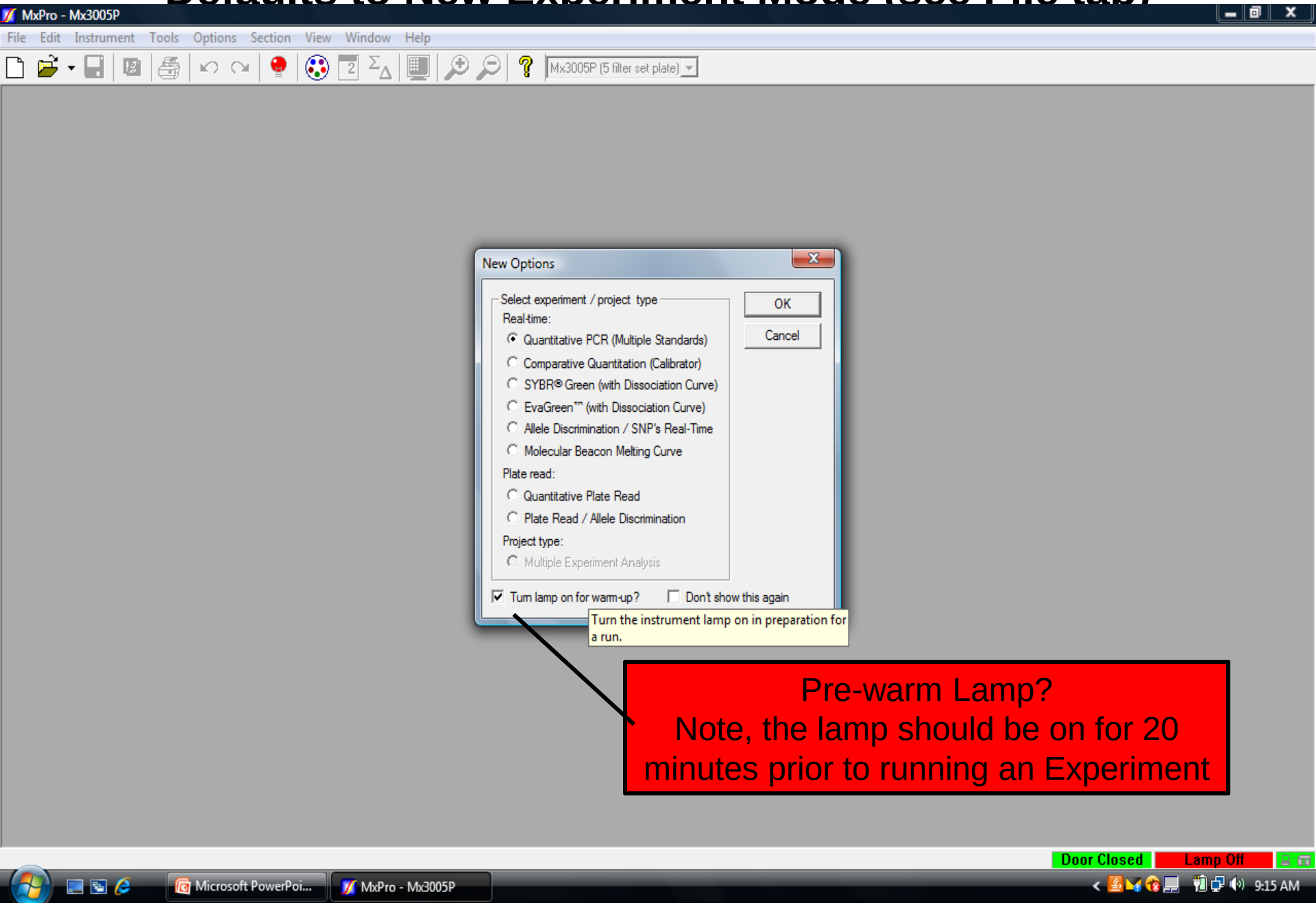
PRODUCTS | TECHNICAL RESOURCES | SPECIAL OFFERS | SHOP | FREEZER PROGRAM | EVENTS > HOME
By Application • By Name • New Products
QPCR
The following section contains training movies. The presentations are provided in a WebEx movie format (.wrf) and require a Windows operating system with a sound card. The movies can be streamed over a high-speed Internet connection or downloaded for offline viewing with a standalone WebEx movie player. Streaming the presentations may require the installation of a viewer plug-in so please make sure you download and install the WebEx player from:
http://www.webex.com/lp/player/download.html
Online Seminars
Stream Video
Module 1: Mx Instrument System and Software
Seminar covers the optical and thermal systems of the Mx instrument line, with discussion of the considerations that went into the instrument design. Time will also be spent on a tutorial of the software used for both systems, covering experimental setup, well types, standards, replicates, and thermal profile setup.
Stream Video
Module 3: Probe and Primer Design
Seminar discusses the criteria involved in designing primers for SYBR Green I and probe based QPCR assays, as well as designing Taqman and Molecular Beacons probes. Dye and quencher selection is covered briefly, and guidelines are provided on how primers and probes should be tested and how reaction conditions can be optimized.
Stream Video
Module 4: Stratagene Mx Software Demonstration
Seminar walks through the software interface used for the Mx instrument line. Covers experimental setup, well types, standards, replicates, and thermal profile setup. Also includes
Internet
Start
9:40 AM

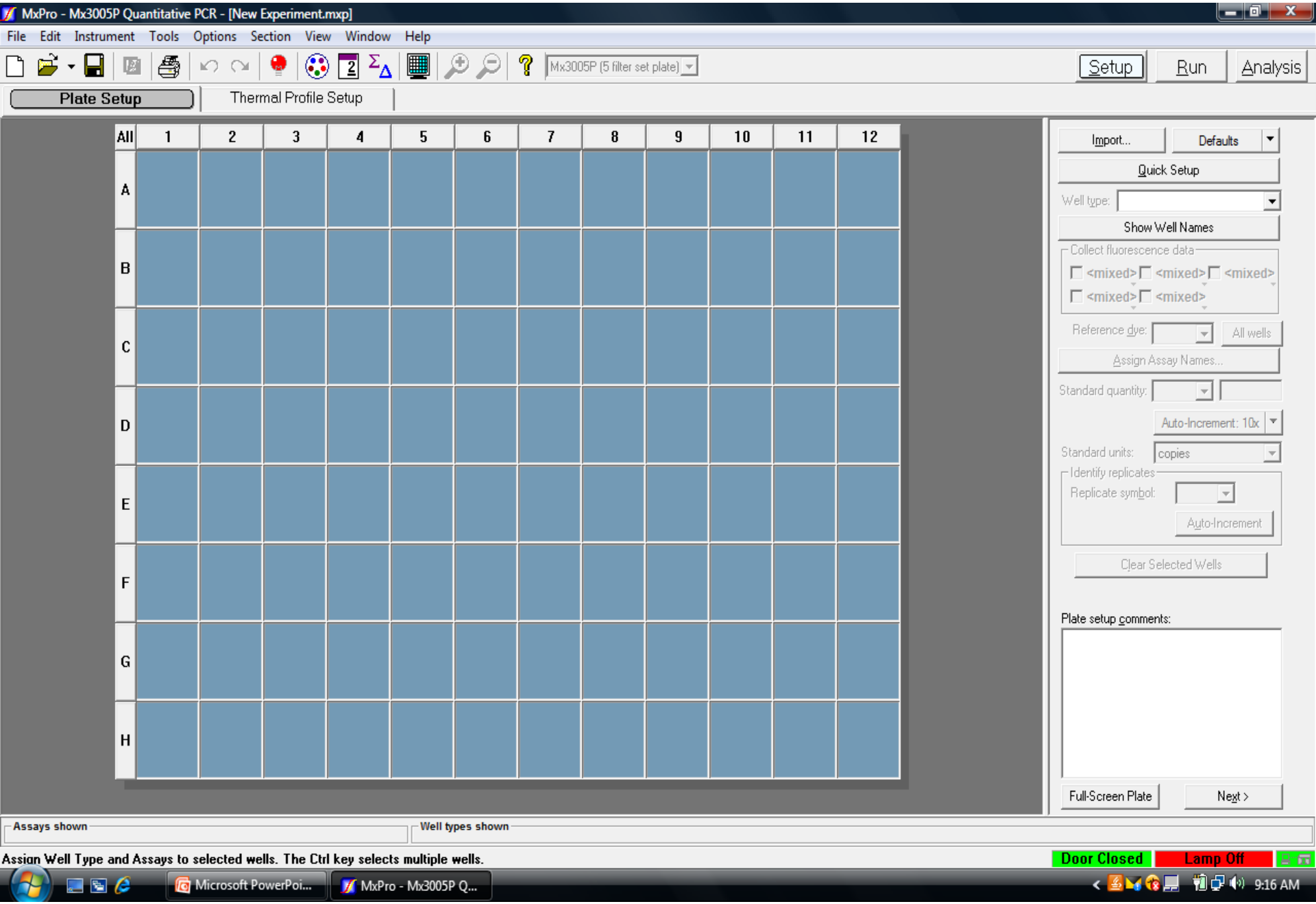
Thermal Cycler: Stratagene, MxPro Software


About MxPro - Mx3005P
MxPro - Mx3005P v4.01 Build 369, Schema 80
© 2007 Stratagene
All rights reserved.
OK
Instrument versions:
OS v6.22, Control v4.40, Firmware v110.61
Experiment last saved under: not available
Trademarks:
Mx3000P® and Mx3005P® are registered trademarks of Stratagene in the United States.
MxPro™ is a trademark of Stratagene.
SYBR® is a registered trademark of Molecular Probes, Inc.
EvaGreen™ is a trademark of Biotium, Inc.
ALEXA Flour® 350 is a registered trademark of Molecular Probes.
FAM™, TET™, HEX™, VIC™, JOE™, TAMRA™, and ROX™ are trademarks of Applera Corporation or its subsidiaries in the US and certain other countries.
Cy™3 and Cy™5 are trademarks of Amersham Biosciences.
Microsoft® and PowerPoint® are registered trademarks of Microsoft Corporation.

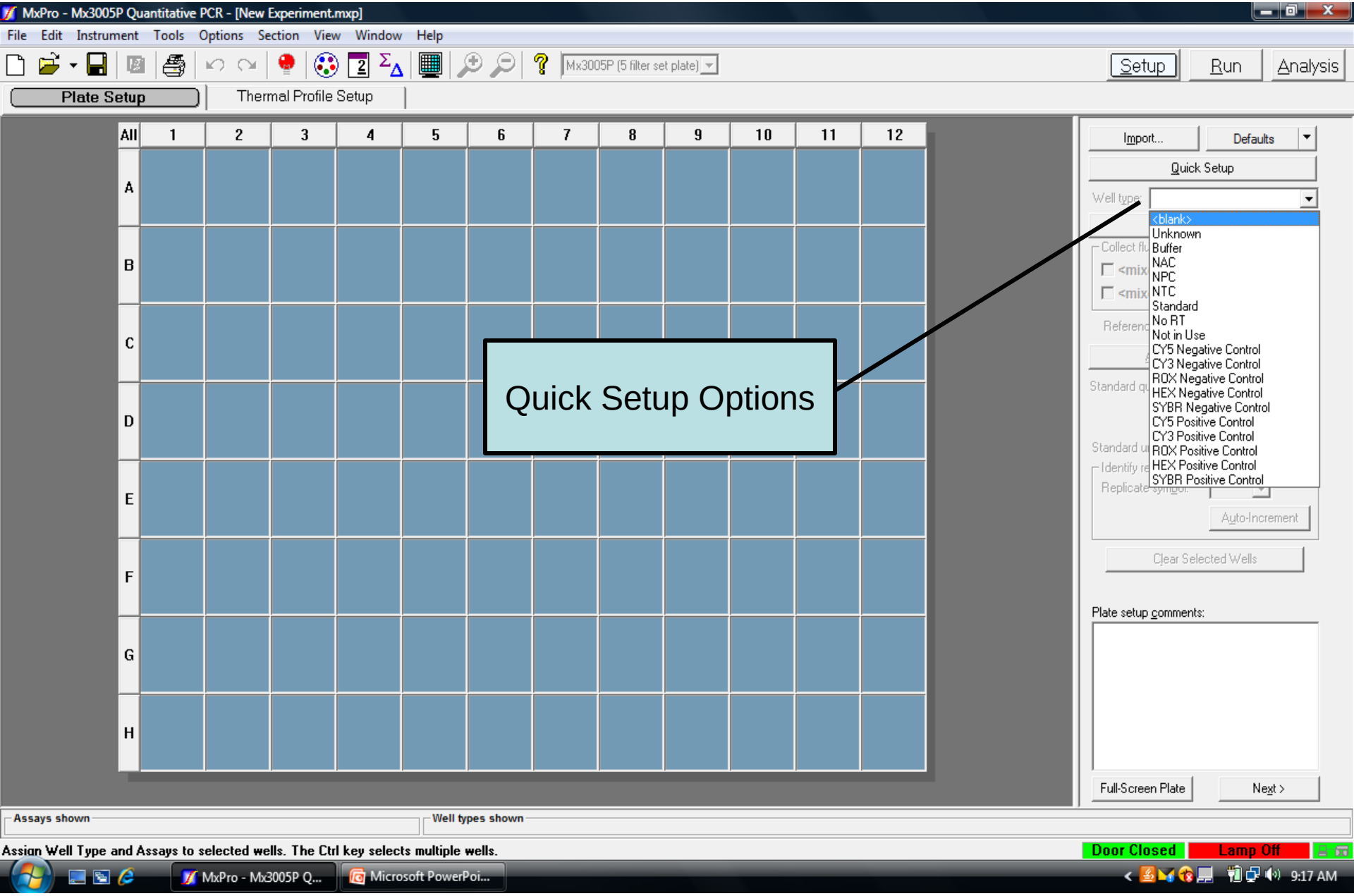
Thermal Cycler: Stratagene, MxPro, Software Startup, Defaults to New Experiment Mode (see File tab)



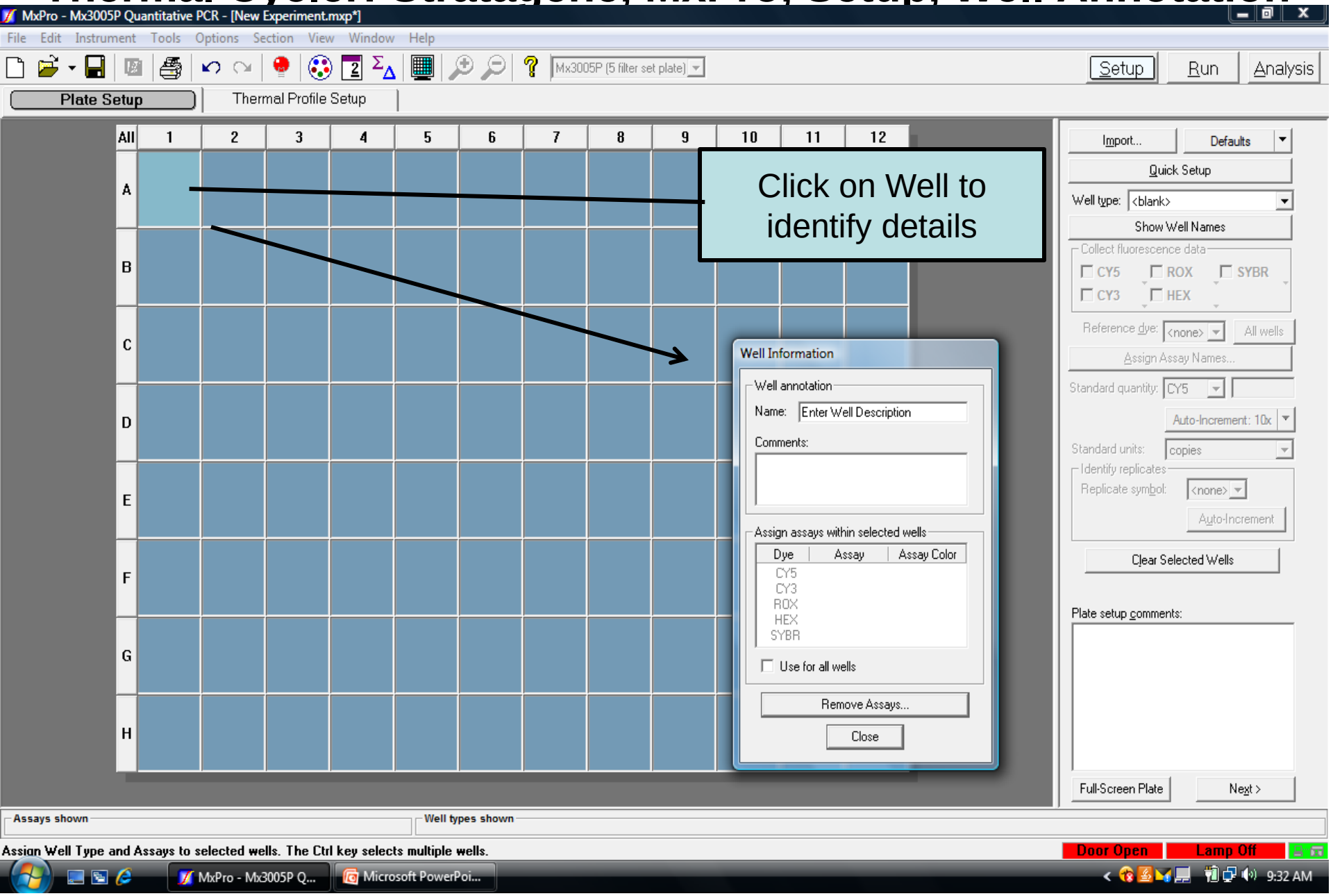
Thermal Cycler: Stratagene, MxPro, Plate Setup



Thermal Cycler: Stratagene, MxPro, Plate “Quick” Setup



Thermal Cycler: Stratagene, MxPro, Setup, Well Annotation

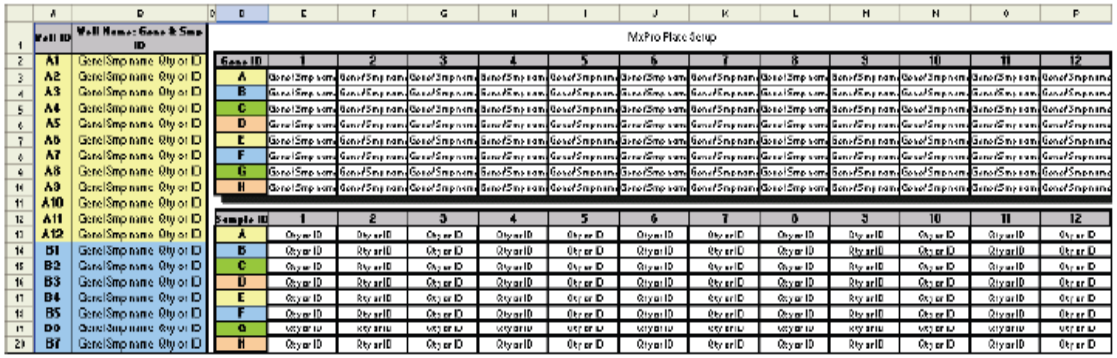


Thermal Cycler: Stratagene, MxPro, Importing Well IDs from Excel, Templates

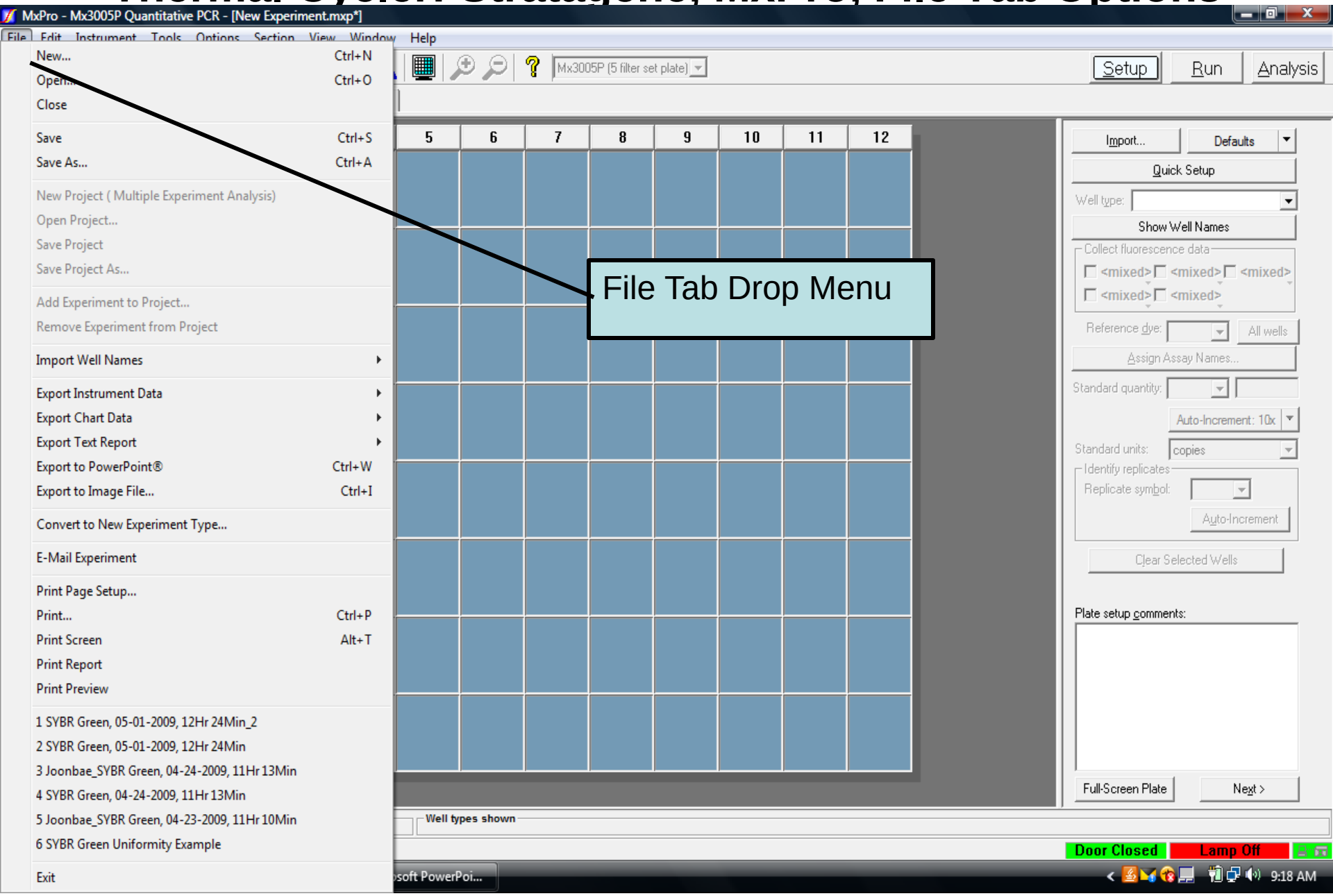
Well names may be imported from a Microsoft Excel file formatted as shown below with column A containing Well ID's and column B containing the well names to be imported. The Well ID's may appear in any order but must contain the syntax A1–H12 or A01–H12. An Excel template associating Well ID positions to well names is stored in the MxPro data folder (e.g., C:\Program Files\Stratagene\MxPro\Storage\Import Well Names from Excel - Well ID Template.xls) and can be opened using Microsoft Excel.

	A	B	C
1	Well ID	Well Name	
2	A1	Reference RNA (1)	
3	B1	Reference RNA (10)	
4	C1	Reference RNA (100)	

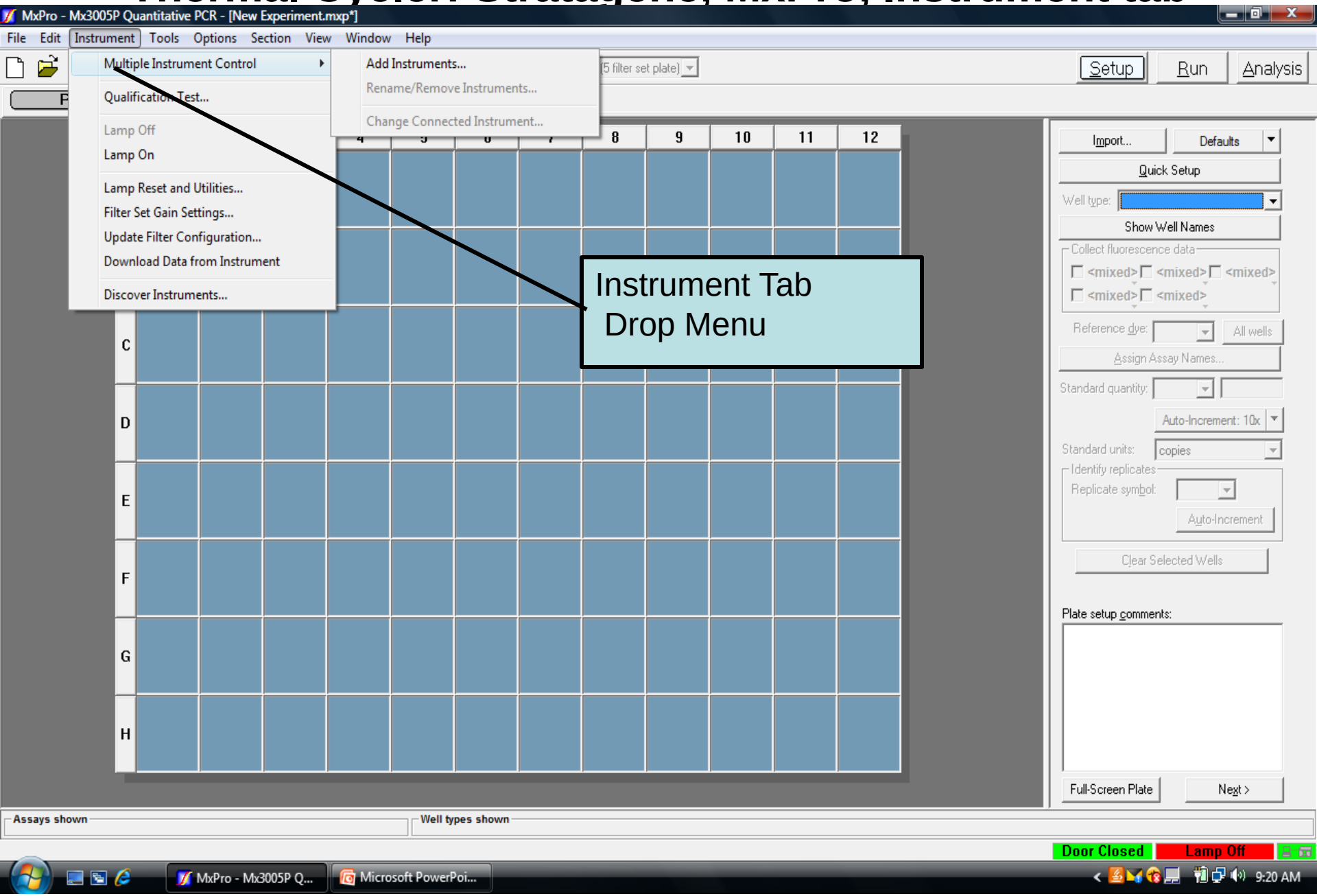
A second Microsoft Excel template format allows for up to two well name designation assignments (e.g., gene name and sample ID) per well. Entries can be entered directly into the two plate setup tables provided (see below). For example, if multiple samples have the same sample name but unique identifiers, the sample name may be entered into the appropriate cells of one plate setup table, and identification numbers may be entered into the appropriate cells of a second plate setup table in the Excel template file. If only one well name designation is necessary, the text in the second plate setup table can be deleted. The template is stored in the MxPro data folder (e.g., C:\Program Files\Stratagene\MxPro\Storage\Import Well Names from Excel - Plate Template.xls) and can be opened using Microsoft Excel.



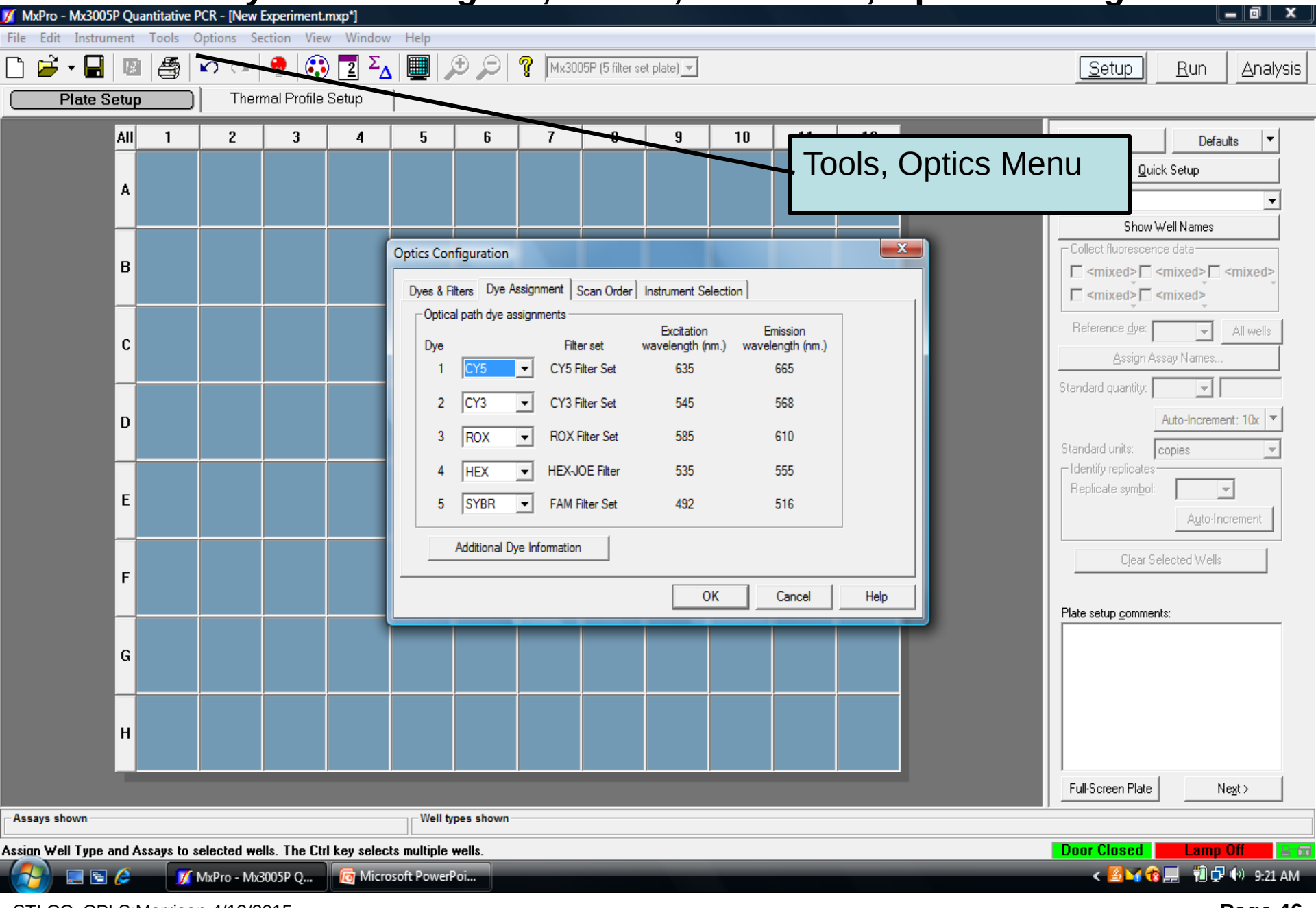
Thermal Cycler: Stratagene, MxPro, File Tab Options



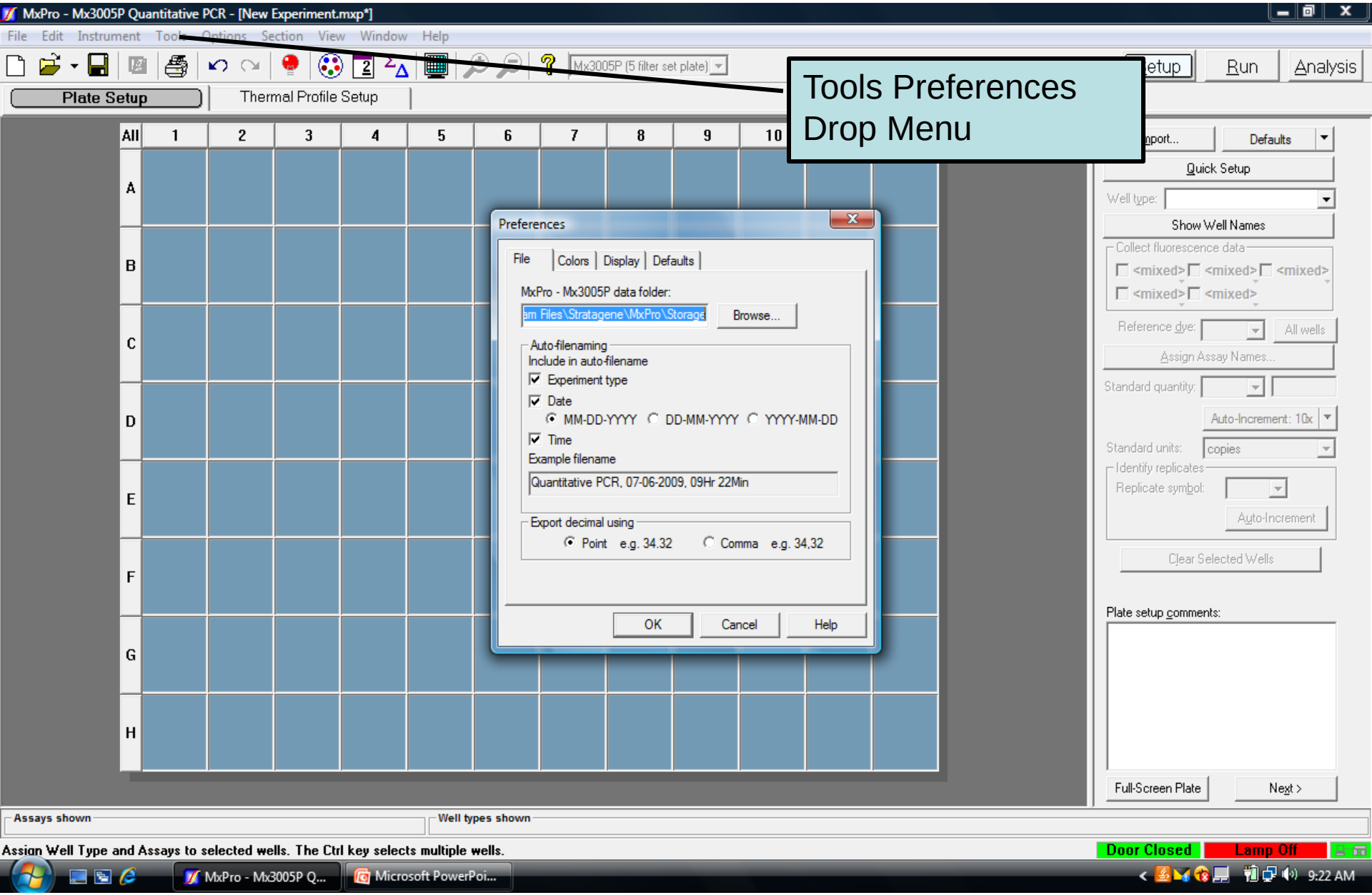
Thermal Cycler: Stratagene, MxPro, Instrument tab



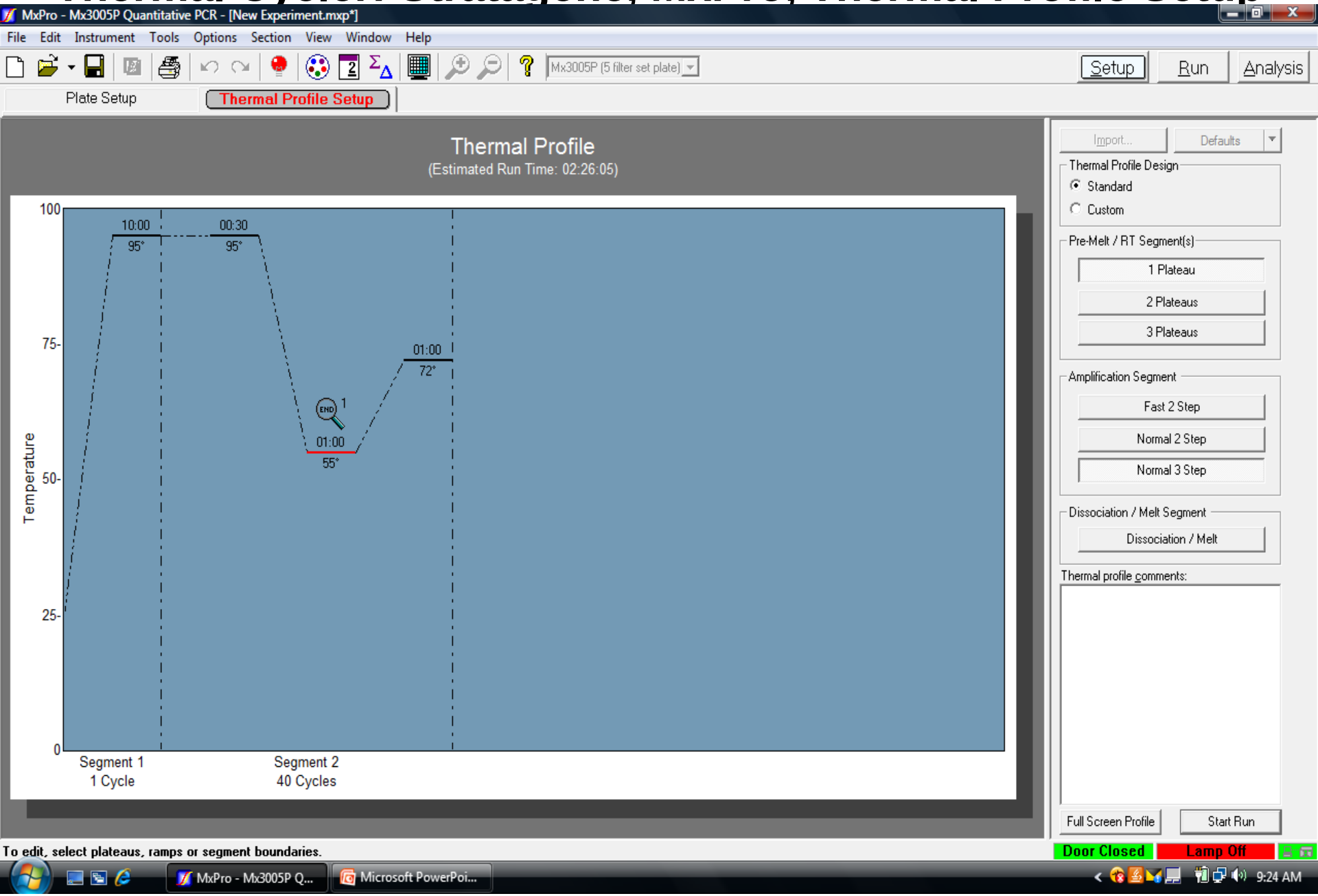
Thermal Cycler: Stratagene, MxPro, Tools Tab, Optics Configuration



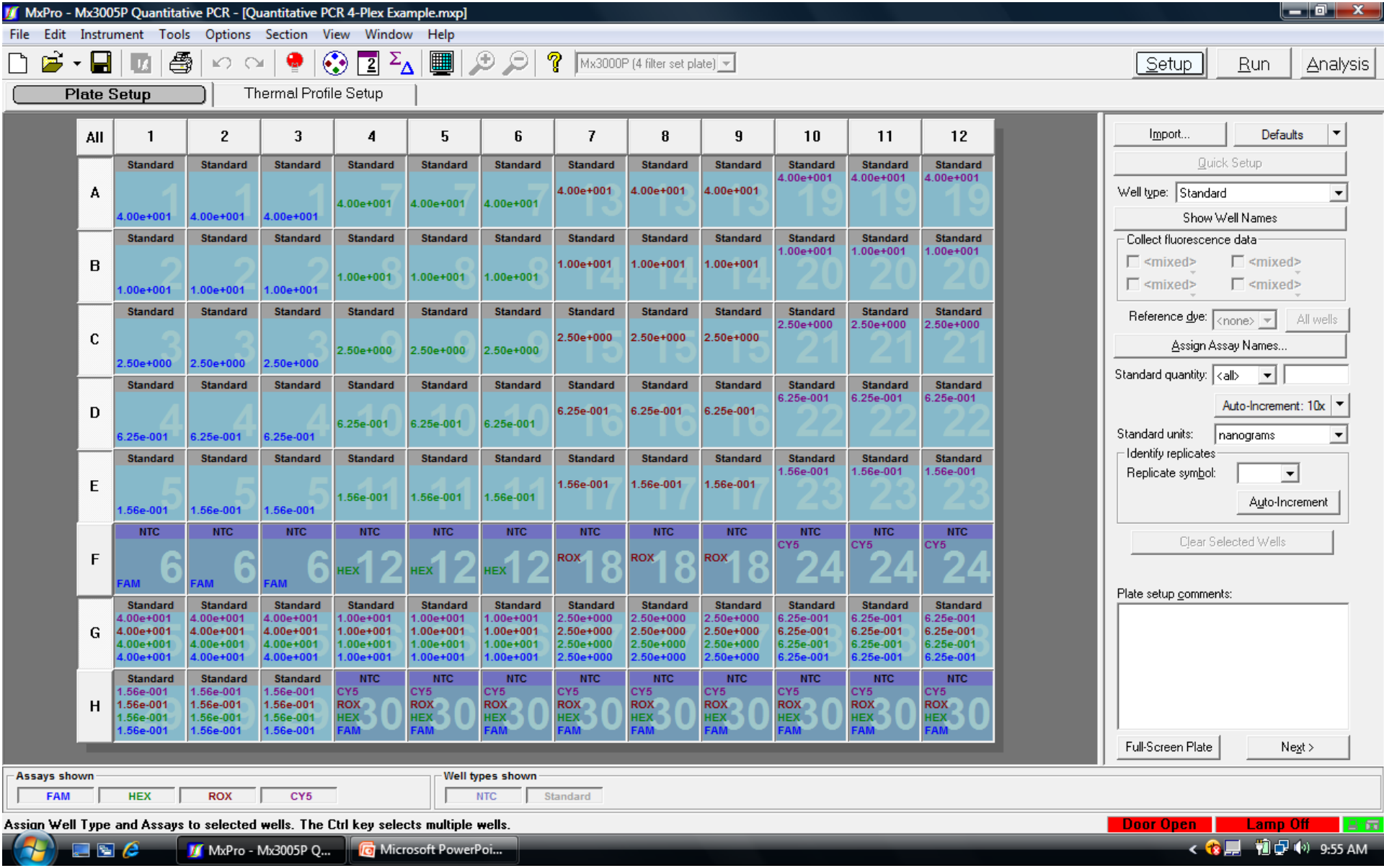
Thermal Cycler: Stratagene, MxPro, Tools Tab, Preferences



Thermal Cycler: Stratagene, MxPro, Thermal Profile Setup



Thermal Cycler: Stratagene, MxPro, QPCR 4-Plex Example Plate Setup



Thermal Cycler: Stratagene, MxPro, Exporting Experiment Data/Results to Excel, Format #1

MxPro Manual.pdf (SECURED) - Adobe Acrobat Standard

File Edit View Document Comments Forms Tools Advanced Window Help

Create PDF | Combine Files | Export | Start Meeting | Secure | Sign | Review & Comment

32 (39 of 435) 150% Find

Format 1--Columnar -- Cycle-by-cycle data are listed for each well.

Microsoft Excel - Excel Format 1 [Read-Only]

File Edit View Insert Format Tools Data Window Help

Arial 10

A1 Segment

	A	B	C	D	E	F	G	H
1	Segment	Ramp/Plateau	Ramp/Plateau #	Well	Dye	Cycle #	Fluorescence	Temperature
2	2	P	2	1	FAM	1	21256	59.7
3	2	P	2	1	FAM	1	21396	59.7
4	2	P	2	1	FAM	2	20893	59.7
5	2	P	2	1	FAM	2	20987	59.7
6	2	P	2	1	FAM	3	20964	59.7
7	2	P	2	1	FAM	3	20777	59.7
8	2	P	2	1	FAM	4	20878	59.7
9	2	P	2	1	FAM	4	20864	59.7
10	2	P	2	1	FAM	5	20946	59.7

Format 2--Grouped by Assay -- Cycle-by-cycle data for each well are grouped by assay names

8.50 x 11.00 in

Stratagene: Permission to copy MxPro to Laptops

From: cindy.jarvis@agilent.com
Sent: Thursday, January 21, 2010 10:32 AM
To: Morrison, Robert G.
Cc: Boedeker, Elizabeth D.; Staerk, Becky K.; Schneider, Scott E.; Norris, Richard J.
Subject: RE: Stratagene and MxPro at BRDG Park

Dear Bob,

You have permission to copy the software to the laptops indicated below.

Kindest regards,

Cindy

Cindy Jarvis
Agilent Technologies
Account Manager
314 706 9945
Cindy.jarvis@agilent.com

From: Morrison, Robert G. [mailto:BMorrison@stlcc.edu]
Sent: Thursday, January 21, 2010 10:17 AM
To: JARVIS,CINDY (A-LaJolla,ex1)
Cc: Boedeker, Elizabeth D.; Staerk, Becky K.; Schneider, Scott E.; Norris, Richard J.
Subject: Stratagene and MxPro at BRDG Park

Cindy,

Last summer you helped with Betsy Boedeker's class getting us a loaner Stratagene and then obtained permission for us to copy the MxPro software to 8 laptops for student analysis functions. At the end of the summer we replaced the loaner device with the new one we ordered and we now have all of that located at our new location at BRDG-Park in the Center for Plant and Life Sciences. The hardware and software we have is shown below.

In order to keep us and our I.T. people legally straight with the MxPro software that we placed on the laptops last summer, we need a response in writing (reply to this email is sufficient) that we are allowed to populate that software to other specific laptops on our campus. We anticipate the total number of laptops in our labs to be 18 eventually. Can you have someone at Agilent or yourself give us this permission?

Thermal Cycler, Agilent-Stratagene Model# Mx3005P SN#DE92800456

Thermal Cycler, Stratagene, Software Stratagene MxPro QPCR 401454-6400 Ver 4.1 Vista or XP

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